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PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-THIRD YEAR

Published Every Thursday by the

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LESLIE R. PALME' PRESIDENT — GEO. S. MACDONALD VICE-PRESIDENT & TREAS — F. K. HOPPIE SECRETARY

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PAPER TRADE JOURNAL

Vol. LXXIX. No. 18 NEW YORK AND CHICAGO Thursday, October 30, 1924

RAPID DEVELOPMENT IN PAPER INDUSTRY ON COAST

Pulp and Paper Manufacture Keeps Pace With Considerable Enterprise Evidenced in Other Industries on the Pacific Coast—Expansion of the Industry on the West Coast Assured, Although Supply and Demand Will Determine How Rapid It Will Be—Manufacturing Problems Somewhat Different From Those of Eastern Mills—Features of Some Representative Mills

By George D. Bearce, Engineer, News Print Service Bureau

The development of the paper industry on the Pacific Coast has been quite rapid, but on the whole not a great deal faster than the growth of the West Coast country in other branches of industry and population. The three large Coast States and British Columbia contain a papermaking center which is not closely allied to the pulp and paper manufacturing groups in the Central and Eastern U. S. and Canada. The mills of the West Coast have somewhat different manufacturing problems from the Eastern mills because of the character and type of raw materials used. Their marketing problem is also dissimilar because of the peculiar paper requirements of the Coast and the great distances from the manufacturing centers to the consumption points. It is hard for one unacquainted with the West Coast country to get an adequate conception of the distances between the coast cities. It takes nearly two whole days and nights by fast trains to cross two states from Portland, Oregon, to Los Angeles, California, or about three and one half times the average running time between Three Rivers, P. Q., and New York City.

Much has been written about the opportunities for expansion of the pulp and paper industry in the Pacific Coast States, British Columbia and Alaska. There is an abundance of pulpwood in this country although it might be mentioned that south of Alaska in the coast region proper 90 to 95 per cent of the wood is hemlock and Douglas fir. Good water power is available, but a majority of the available undeveloped power sites have small drainage areas and storage possibilities, and a fluctuating water supply can be expected. Another difficulty that confronts the immediate development of the West Coast in the pulp and paper industry is that of marketing the product, especially news print. With the present low ebb in the Oriental and Australian markets the established mills are able to completely take care of present consumption.

An expansion of the paper industry on the West Coast is assured although supply and demand will determine how rapid it will be. At present the three controlling factors, raw materials, adequate power, and the availability of consumption centers, do not appear to be sufficiently co-ordinated to warrant a rapid expansion.

All of the large news mills of the Pacific Coast are located on tidewater. This is doubly advantageous because they bring their pulpwood logs and other materials to the mill by water, and ship the finished product by steamer. A large proportion of the wood comes to the mills in rafts from the various logging centers along the coast.

Pacific Mills Ltd., Ocean Falls, B. C.

The Pacific Mill plant is one of the modern plants on the coast. Practically all of the buildings are of concrete construction. The mill has two 204 inch and one 174 inch paper machines that make about 240 tons of news print per day and one 120 inch kraft machine.

The most recent development at this plant was raising the dam about 14 feet so that there is now ample power to operate continuously on slush stock. The feat of increasing the height of the old concrete dam 14 feet was a very neat engineering job and the power development now has a head of over 160 feet. The present water storage, Link Lake, is 15 miles long and averages ½ mile wide.

Pacific Mills, Ltd., Ocean Falls, B. C.

Pulpwood is very efficiency handled at this mill. The wood blocks are conveyed a long distance from the wood mill to the grinders by water sluices, and storage facilities have been provided so that the

ground wood mill will have a never failing supply of wood.

The drying of paper at this plant is a serious problem due to the heavy rainfall (168 inches per year) and the large number of days of high humidity. One particularly interesting attempt to solve the problem is the introduction of hot gasses from the top of the boiler house into the machine room. Cross ventilation has also been tried out and economies in steam consumption have been made by adjustments in the position of the hoods.

The steam plant is very effectively operated on a low grade B. C. coal and an interesting feature is the hydraulic removal of ashes.

The ground wood and sulphite slush stock at this mill is regulated by the Warner Equalizer before going to the mixing tanks. This consistency regulator was designed at one of the mills of the Crown Willamette Paper Company and has been used on the coast for several years. It consists of a wooden tank about 5 feet high and 6 feet in diameter with an inner sheet iron cylinder and a wooden arm that is continually dragged through the stock in the tank by a revolving gear. If the stock becomes heavy the friction against the drag arm becomes greater thus causing it to deflect from its position which in turn acts on a system of levers and opens a water valve to dilute the stock. The arm also actuates pointer showing stock density and the consistency is continuously recorded.

The paper mill uses the roll finishing machine that has been adopted by many of the western news mills. The rolls of paper from the winder are placed on the roll finisher which consists of two parallel slowly revolving steel winder rolls about 12 inches in diameter. First the body wrapper is run in and allowed to run smooth, and then the bands are wound on in the same way. The entire wrapper is pasted, the roll is taken to the finishing room, placed on hosses and the heads are put on.

Another feature at this mill worth of mention is the absence of the characteristic kraft odor. The design and operation of the sulphate plant is such that it has been possible to eliminate the difficulty to a large extent.

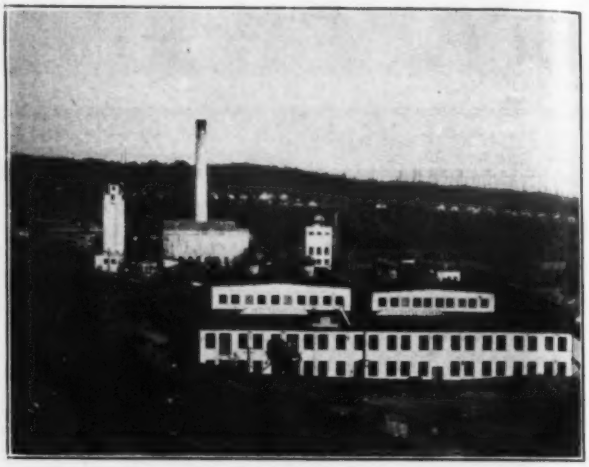
Powell River Co., Powell River, B. C.

The Powell River plant is one of the best on the Pacific Coast. All of the principal buildings are of concrete construction, the new steam plant, half of which was recently finished, is modern in every respect and the construction of a new acid plant about two years ago added much to the plant. The dam just above the mill

Dam and Sluice, Pacific Mills, Ltd.

is now being raised about 12 feet and when completed will have a storage lake behind it about 30 miles long and nearly a mile wide. The installation of an additional penstock will develop enough power to provide for further expansion of the ground wood plant and the addition of more paper machines at some future time.

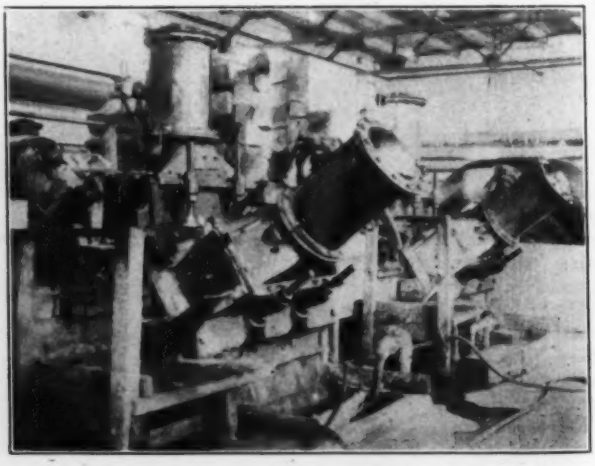
The grinders are 3 pocket 32 inch waterwheel driven machines and form a very compact unit. Fig. 5 illustrates the type of wood used in the grinders. Much of the pulpwood comes to the grinder room as square bolts about 10 x 10 inches.



Paper and Sulphite Mill, Powell River Co., Ltd.

The paper mill is electrified throughout and each of the four big machines is equipped with a single motor in the line shaft.

The new boiler house is equipped with six 490 H.P. B & W boilers and will eventually be doubled in capacity. All boilers have mechanical oil burners on the front side and Dutch ovens on the back side, so that either oil or hog may be burned separately, or both burned in combination. This provides a very effective and flexible steam producing unit. Especially good results are being obtained with hog fuel, which is burned on a special sloping grate. The furnace has a large combustion space and air is introduced at the bridge wall. The result is that the combustion conditions are extremely good and further evidence of the high efficiency obtained on these boilers, when hog fuel alone is burned, is the low temperature of the stack gasses and the high CO^2 that is consistently maintained.



Section of Grinder Room, Powell River Co.

The new plant of the Washington Pulp and Paper Company is also one of the very modern mills on the Pacific Coast. Situated on tidewater it has the advantage of both rail and water shipments for raw materials and finished product.

All of the buildings are of concrete construction and the plant

layout is such that the flow of materials is logical and at the same time provision has been made for future expansion.

The sulphite mill which was completed early this year, has a three tower Jenssen system. The acid plant is located on the dock about 600 feet from the digester house and the acid is pumped to the sulphite mill. All of the lime rock and sulphur is unloaded direct from the boat to storage at the acid plant, thus eliminating the extra handling of these materials.

The ground wood mill is equipped with 4-foot three pocket grinders having two pressure cylinders on each pocket. This type of grinder has several advantages over both the two foot and the magazine and is apparently giving good satisfaction. The labor cost is lower than on the two foot grinders and the control of stock is easier than on the magazine grinder. Stock control is especially valuable on the west coast where it is necessary to grind a large percentage of hemlock.

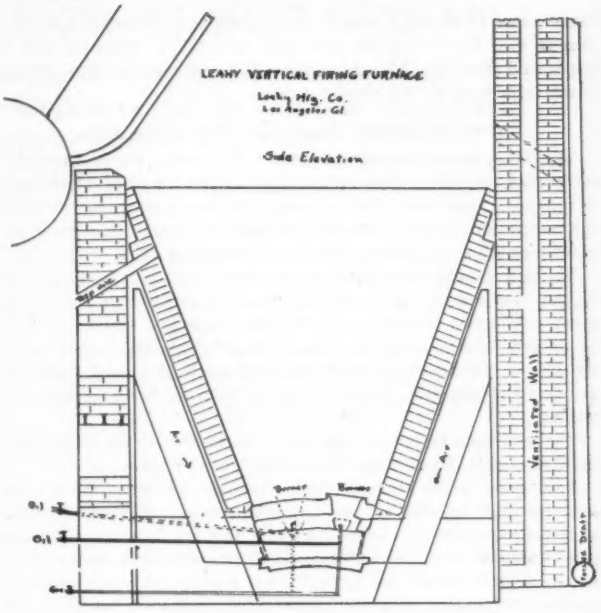
The paper mill with two 164 inch machines, one operating at about 750 feet and the other at 1000 feet per minute is modern in all respects. A single motor is used on the drive of the slower machine and the Westinghouse sectionalized drive on the fast machine. Each machine is equipped with a Trimbey mixing system and whenever lapped pulp is used the laps are shredded and run into the slush system of the mill.

The steam plant uses both fuel oil and hog fuel. The oil burning boilers are being fully equipped with the new Leahy furnace which is giving very excellent results. This furnace employs a peculiar method of atomization, and this feature together with the effective introduction of heated air into the large combustion space produces very efficient combustion results.

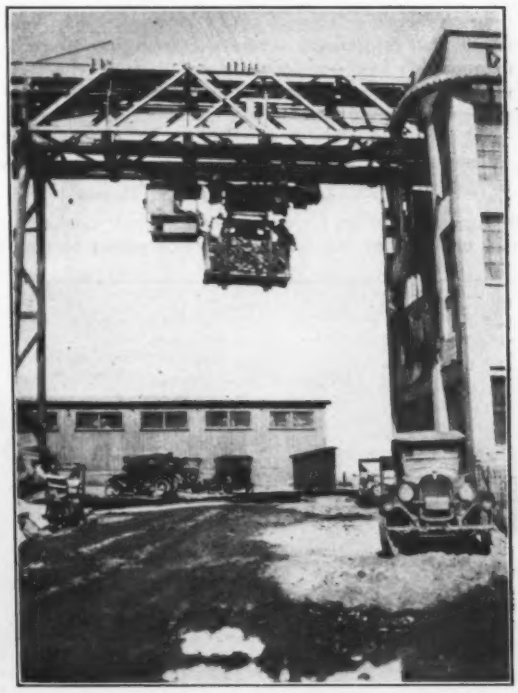
This paper mill was one of the first in the country to install the unaflow engine. The power plant is equipped with a large twin Nordberg unaflow driving a 2500 K. V. A. Westinghouse generator. This machine is so regulated that the exhaust balances the drying requirements of the paper mill and is consequently a very economical power unit. The balance of the required electric power is purchased when power is available, and, during low water periods, generated on a 3750 K. V. A. unit.

One of the exceptional features at this plant is the monorail system of handling materials. All of the pulpwood is handled in racks from storage to the side of the grinders by this monorail system. This eliminates all rehandling of pulpwood in the grinder room. The finished paper is transported in slings from the mill to the storage dock or boat by the same equipment. This monorail system is also used to carry many other articles and types of materials and has proved to be a very effective and economical method of transportation.

Washington Pulp & Paper Co. From Digester House



Leahy Vertical Firing Furnace



Overhead Monorail Carrying Pulpwood, Washington Pulp & Paper Co.

Columbia River Paper Mills, Vancouver, Wash.

The plant Columbia River plant is the latest paper mill development on the coast and is located on the Columbia River a short dis-

tance from Portland, Oregon. The plant was constructed by the Austin Co., has a sulphite mill with two 12 ton digesters and a paper mill with one 136 inch machine. The principal product of this plant is wrapping and similar papers.

Crown-Willamette Paper Co., West Linn, Ore.

The West Linn plant of the Crown Willamette Paper Company is located on the Willamette River. The principal buildings of the plant have been rebuilt during the past few years and with the completion of the paper mill and sulphite buildings the principal units will all be of modern concrete construction.

The new ground wood mill has two foot 3 pocket grinders and all of the lines are equipped with Meyer Governors which are giving good satisfaction because of their close regulation during periods of fluctuating water supply. All of the grinders are equipped with the Baxter Evacuator (Fig. 10) which removes the vapor from the grinders and keeps the grinder room free from steam during the cool weather.

The new ground wood mill also contains a Voith Caterpillar grinder, one of the first installed in the United States.

News print is the principal product at this mill and the big 1000 foot machine installed a few years ago has a General Electric sectionalized drive. The turbo generator that supplies power for the paper machine is of a special design that provides for a sectionalized speed control and at the same time a heat balance that supplies the required amount of drying steam. This prime mover combination consists of a geared turbine driving a 600 K. W. direct current generator and a 500 K. W. alternator. When more steam is required for drying, the steam to the turbine is increased and the additional power that is produced is used by the alternator which acts as a generator. This combination produces a very good steam balance and maintains the most economical operating conditions.

One of the interesting features of the steam plant is the use of a new type of mechanical atomizer which operates on low pressure oil (75 to 90 lbs.). Considerable steam saving is made by the use of this equipment.

Crown-Willamette Paper Co., Camas

The Camas mill of the Crown Willamette Paper Company makes news on one machine and a large variety of papers on the others.

West Linn Mill, Crown-Willamette Paper Co.

The new tissue machine is one of the best in the country and is fully equipped with ball bearings. It consistently maintains a speed of about 500 feet per minute, has a very low operating H.P. consumption and is also adjusted so that the required power for driving and the steam used for drying create a nice heat balance.

A very interesting piece of equipment used at this plant is a "pick-up attachment" after the couch which by means of air suction and pressure carries the sheet from the wire to the first felt very effectively.

Hawley Pulp & Paper Co., Oregon City, Ore.

The Hawley mill is across the river from the West Linn plant of the Crown Willamette Paper Company and its main product is wrapping tissue and similar papers, although it makes a small amount of news print. Its total production of all grades is about

Baxter Evacuator, Crown-Willamette Paper Co.

100 tons per day. The sulphite mill has five digesters and the groundwood mill is equipped with 20 three-pocket grinders.

National Paper Products Co., Stockton, Cal.

The Stockton plant of the National Paper Products Company is one of the largest mills manufacturing board on the Pacific Coast. One particularly interesting installation at this plant is the Trimbey mixing system on a board machine. This is the only application of the continuous mixing idea in the board industry and it is apparently giving good satisfaction.

Inland Empire Paper Co., Millwood, Wash.

This mill is located just outside Spokane and is a self-contained unit, having a groundwood sulphite and paper mill. The sulphite mill was recently constructed, has a Janssen tower system, and is modern in all respects, producing a very fine light colored pulp. The mill buildings are being reconstructed and in the near future all of the main units will be of modern concrete construction and at the same time provision will doubtless be made for an additional paper machine.

Catalog of Mechanical Stokers

Russell T. Gray, advertising engineers of Chicago, have just published for The Stoker Manufacturers Association a new book entitled, "The Condensed Catalog of Mechanical Stokers", copies of which may be obtained by writing direct to the secretary of the association, W. V. McAllister, Walker avenue, Detroit, Mich.

The book is unique in that it is a complete catalog of the various competitive manufacturers of mechanical stokers. It is a part of the educational advertising campaign being conducted by the Stoker Manufacturers Association.

The book is a very good example of the possibilities in cooperative advertising for competitive companies and it is said to be the only cooperative catalog ever published by competitive manufacturers of mechanical equipment.

RIVERSIDE FIBRE AND PAPER CO. STARTS NEW MILL

New Mill Is Equipped With 116 Inch Fourdrinier, Which Started Operations in June, and a Five-Cylinder Paper Machine Which Is Just About To Start—Both Machines Built By the Beloit Iron Works of Beloit, Wis.—New Plant Has Capacity of Fifty Tons Daily

The new fifty ton, two machine mill of the Riverside Fibre and Paper Company, located on the Fox River at Appleton, Wis., started operating on a producing scale June 15, 1924. The stock preparing building, machine rooms and finishing building are built of reinforced concrete, designed by Orbison & Orbison, consulting engineers. The mill adjoins the sulphite mill making it possible to handle deckered stock to the beaters, eliminating the undesirable wet machine lap pulp.

Stock Preparing Building

This building is composed of five stories with the deckered stock storage on the top floor. The pulp is conveyed from the pulp mill decker to the top floor, at a density of seven and a half percent, by means of a single chain conveyor with maple block flights. The conveyor was built by the C. A. Lawton Company, of DePere, Wis. and has a capacity of forty-three hundred pounds of air dried pulp per hour. This conveyor is driven by a 15 H.P. General Electric back geared motor. A five thousand pound capacity Otis elevator is used for trucking broke, clay, etc. to the Beater Room.

Pulp Storage

The pulp storage tank is a Bellmer Beater of fifteen tons capacity equipped with a Bellmer Screw, built by the Moore & White Machine Co.

Beater Room

The beater room, located on the fourth floor, comprises four two thousand pound Niagara beaters, built by the Valley Iron Works of Appleton, Wis. The stock drops into the beaters by gravity which necessitates only one man in the beater room.

The beaters are driven by General Electric 150 H.P. slip ring, three bearing motors, using Link Belt silent chain.

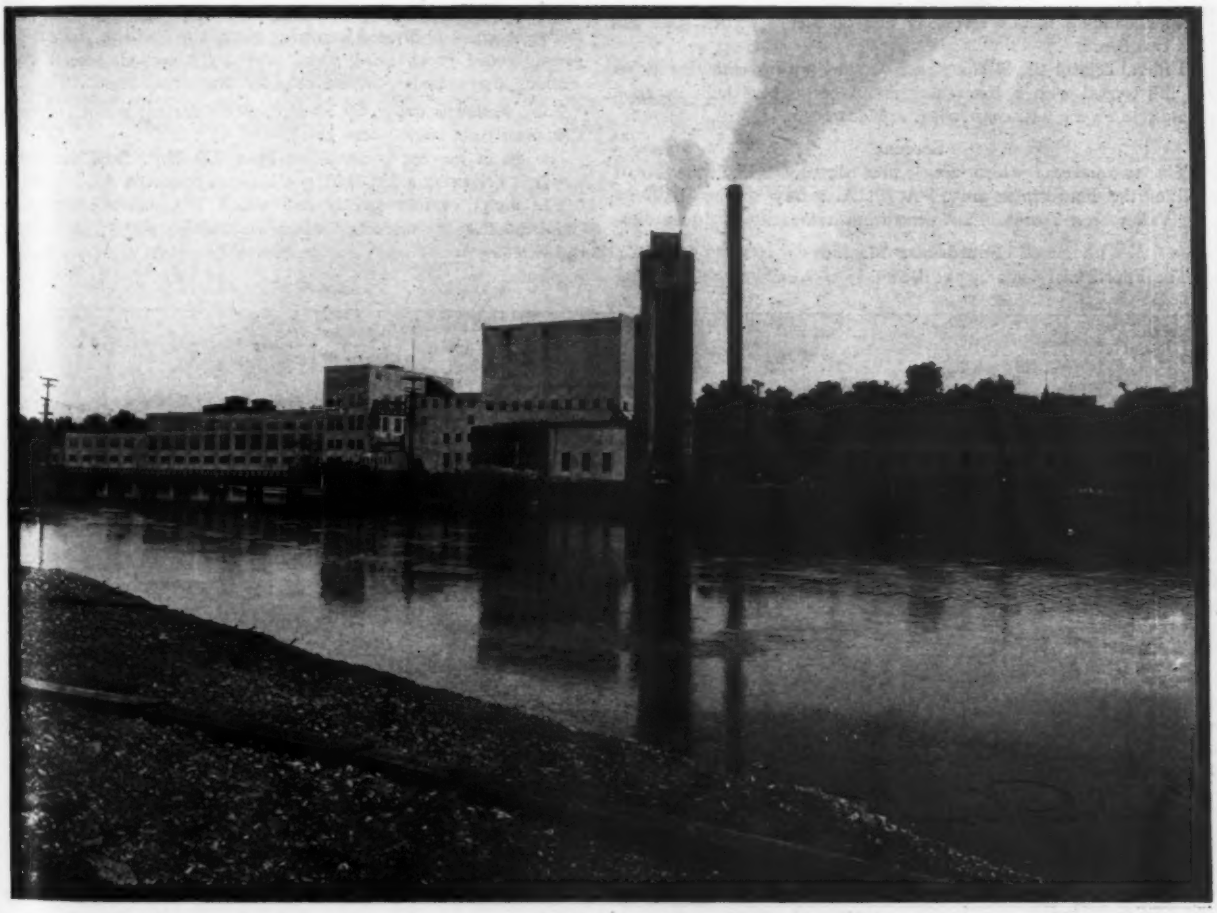
Jordan Chests

Directly below the beaters, on the third floor, are four horizontal reinforced concrete jordan chests, each of four thousand pounds capacity. The agitators were furnished by the Valley Iron Works and are driven by General Electric 5 H.P. back geared induction motors.

The men's locker rooms and shower baths are also on this floor.

Jordans

The jordan room which is on the same elevation as the machine room, contains three jordans built by the Appleton Machine Com-



PLANT OF THE RIVERSIDE FIBRE & PAPER CO.

pany. These engines are directly driven by General Electric 150 H.P. synchronous motors.

The stock drops directly from the chests to the jordans.

The main distributing switchboard, built by the Westinghouse Electric and Manufacturing Company is located on the Jordan Floor and is composed of thirteen panels. This was installed by the Langstadt Electric Company of Appleton.

Machine Chests

The four horizontal reinforced concrete machine chests each have a capacity of six thousand pounds and are located directly under the jordans.

The machine chest agitators were built by the Valley Iron Works of Appleton and are driven by General Electric 5 H.P. back geared motors.

The stock is pumped from the chests to the machine by Beloit Iron Works triplex pumps which are driven by 7½ H.P. variable speed General Electric motors.

The size emulsifying system is on this floor and is equipped with the Western Paper Maker's Chemical Company's emulsifier. A tank car storage makes the handling of size a simple operation. The alum is also mixed on this floor.

The size and alum solutions are pumped to the storage tanks which are located above the beaters and a float switch in each of the storage tanks keeps both storages full at all times. The alum pump was furnished by the Duriron Company of Dayton, Ohio. All of the alum piping and fittings are lead lined and were furnished by the W. S. Patterson Co. of Appleton.

Machine Building

This building is 204 feet long and 62 feet 6 inches wide and has two floors.

Federal cement tile blocks placed on steel purlins with two inches of lith topped with a Johns-Manville Asbestos base built up roof, completes a very well constructed machine room.

Screens

The two screens which are located directly behind the breast roll of the Fourdrinier are P. A. P. A. rotary screens, built by the Valley Iron Works. Each screen has a capacity of fifteen tons.

Fourdrinier Machine

The Fourdrinier built by the Beloit Iron Works of Beloit, Wis., is designed for speeds ranging from 150 ft. per minute to 600 ft. per minute.

The wet end is their removable Fourdrinier type, which makes wire changing a simple procedure. The wire is 116 inches wide and 65 feet long. The machine has three presses; the couch and first press are Millspaugh suction rolls built by the Sandusky Foundry and Machine Company, of Sandusky, Ohio.

There art thirty, 48 inch dryers with one 24 inch receiving dryer and two 36 inch felt dryers and two stacks of calenders, one drum reel and a Beloit winder. The machine trims 106 inches.

The drying system was furnished by the Fulton Engineering Company of Middletown, Ohio, and the regulator valves were furnished by the Locke Regulator Company of Salem, Mass. A Republic Flowmeter records and integrates the steam used on the dryers.

Suction Pumps

One Nash patented Hydro-turbine No. 4 pump takes care of the five suction boxes on the Fourdrinier. This pump is driven by a 20 H.P. General Electric squirrel cage motor. There is also one No. 2 Nash pump on the felt suction box. This pump is driven by a 7½ H.P. General Electric squirrel cage motor.

The suction couch is taken care of by an 18 x 24 Sandusky vacuum pump driven by Allis Chalmers 40 H.P. motor and the vacuum pump on the first press is 12 x 18 Connersville pump, driven by 30 H.P. General Electric squirrel cage motor.

Paper Machine Drive

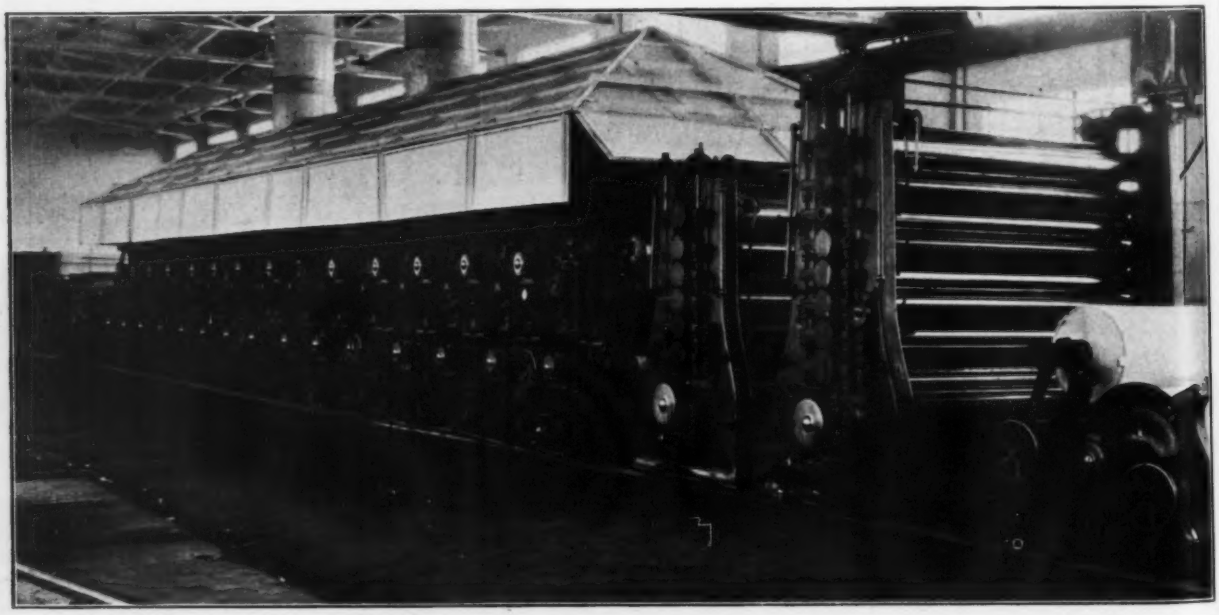
The electric drive on the Fourdrinier machine was furnished by the Westinghouse Electric and Manufacturing Company.

The machine is divided into nine sections as follows: couch, first press, second press, third press, first dryer section, second dryer section, first calender, second calender and drum reel.

Each section is driven by 50 H.P. direct current motors, through Cleveland right angle worm gears.

The direct current is furnished by a 250 H.P. D.C. generator, which is driven by a 350 H.P. synchronous motor.

The direct current switchboard which is completely automatic and located on the first floor under the machine consists of thirteen panels. This board was installed by the Langstadt & Meyer Co. of Appleton.



NEW FOURDRINIER MACHINE OF THE RIVERSIDE FIBRE & PAPER CO.

Cylinder Machine

The cylinder machine which is nearing completion and will probably start operation in thirty days is a Beloit Iron Works machine, designed for speeds from 50 to 200 ft. per minute. The machine is equipped as follows: 5 cylinder moulds; 3 primary presses; 2 baby presses; 3 main presses; 2 dryer sections, each containing sixteen 48-inch dryer rolls, two 36-inch and one 24-inch felt dryer rolls; 2 nine roll calender sections; 1 vertical stand reel; 1 duplex cutter; 1 four drum Moore & White winder.

Drying System

The drying system for this machine was furnished by the Fulton Engineering Company and the regulator valve on the main steam header was furnished by the Locke Regulator Company.

Screens

The screens used in connection with this machine are P. A. P. A. rotary screens built by the Valley Iron Works. The capacity of each screen is six tons.

Cylinder Machine Drive

The machine is driven by a Westinghouse drive as follows: 1st and 2nd baby presses—2-12½ H.P. 250 volt D. C. motors; 1st press —1-27½ H.P. 250 volt D. C. motor; 2nd and 3rd presses—2-15 H.P. 250 volt D. C. motors; 1st and 2nd dryer sections—2-15 H.P. 250 volt D. C. motors; 1st and 2nd calenders—2-27½ H.P. 250 volt D. C. motors; Reel motor—1-12½ H.P. 250 volt D. C. motor; 1st and 2nd cutters—2-12½ H.P. 250 volt D. C. motors.

The winder is driven by a 20 H.P. 440 volt A. C. variable speed motor.

All of the speed reducers used on this drive were furnished by the Jones Foundry and Machine Company of Chicago.

Super Calenders

The super calender stack built by the Beloit Iron Works completes the machine room equipment.

Ventilation

The hoods for both machines are constructed of Transite Board on

FILTER PLANT, RIVERSIDE FIBRE & PAPER CO.

steel framework and were furnished by the Johns Manville Company.

The Briner Economizer Ventilating System on each machine keeps the machine room well ventilated.

Finishing Building

The finishing building consists of two floors, each floor having an area of 5,900 sq. ft. This building is equipped with a 3,000 lb. capacity Otis elevator.

On the second floor, which is at the same elevation as the machine room, are two 107-inch cutters, built by the Hamblet Machine Company. These cutters are equipped with Beloit Iron Works, ten roll cutter stands and Moore & White lay-boys. One 60-inch Hamblet cutter on this floor is used for small super calendered rolls. Two Seybold Machine Co. 64-inch trimmers, together with a ruling

BEATER ROOM, RIVERSIDE FIBRE & PAPER CO.

machine built by the F. E. & B. A. Dewey Company complete the equipment on this floor.

First Floor

A Seybold Machine Company 54-inch trimmer located on this floor takes care of super calendered paper and smaller sheets.

The broke is baled on this floor in a Logeman Brothers 500-lb. automatic baler.

One No. 995 Fairbanks self contained scale having a capacity of 6000 lbs. with a 60 x 54 platform and an automatic full capacity Direct Reading Dial, completes the finishing equipment.

Filter Plant

The Filter Plant, which is located five hundred yards west of the paper and pulp mill, on the canal and Lake street, has a capacity of 4,000,000 gallons of water in 24 hours, was furnished by the Norwood Engineering Co.

Engineers and Contractors

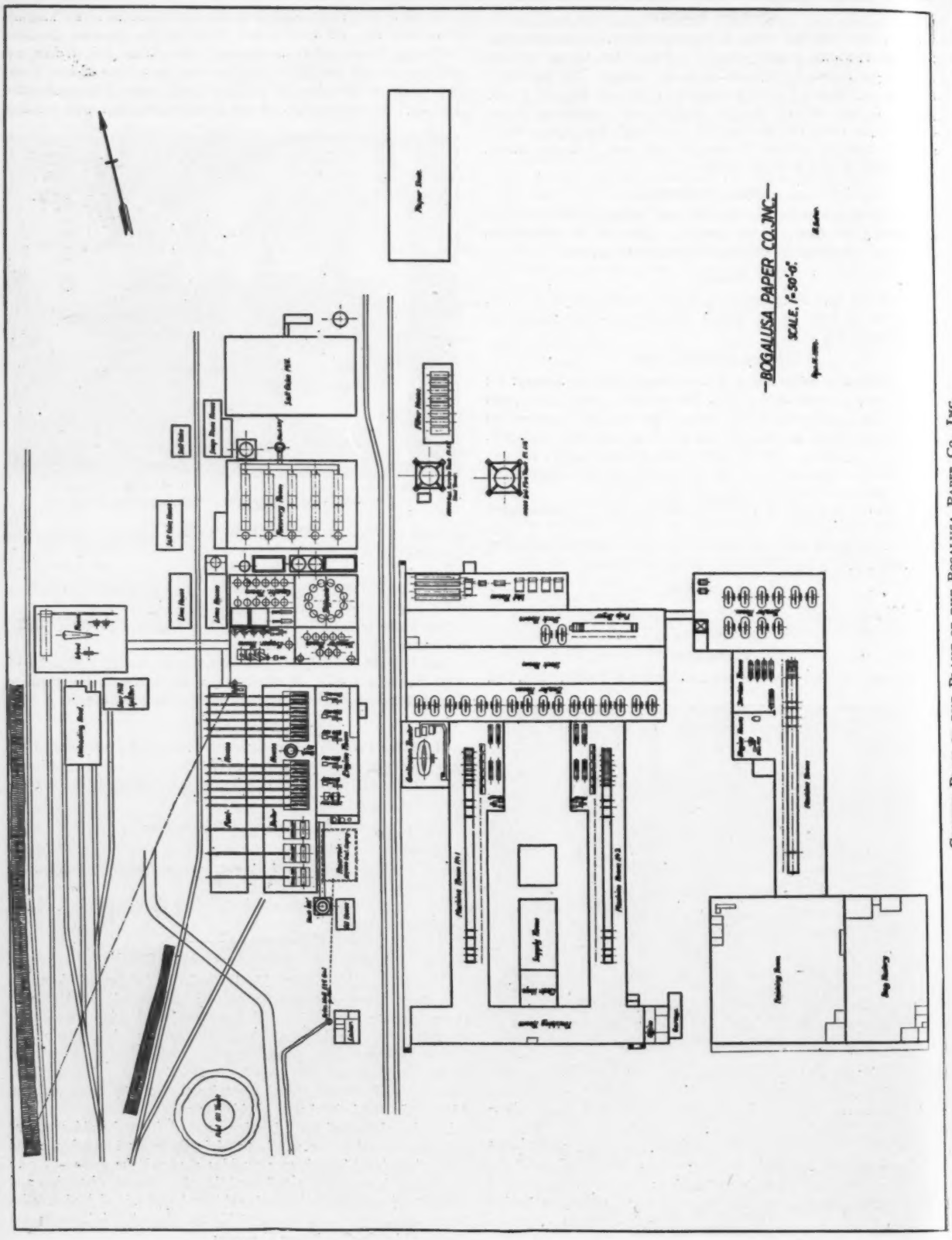
The mill was designed by Orbison & Orbison, Engineers of Appleton, Wis. and built by C. R. Meyer & Sons Company, Contractors of Oshkosh, Wis.

The electrical equipment was installed by the Langstadt & Meyer Company of Appleton.

Adding Lead Lined Acid Tanks

KALAMAZOO, Mich., Oct. 27, 1924.—The Kalamazoo Vegetable Parchment Company has completed the erection of an addition to the concern's acid tank house and are now putting in several large sheet lead lined acid tanks for the preparation of sulphuric acid for use in the parchmentizing department. The acids are mixed and refined on the second floor, flowing by gravity to the storage tanks on the first floor and then by gravity to the parchment division. Charles Conrad is in charge of this department,

Machine shop equipment has been moved from the old structure near the general offices and installed in the central warehouse and supply building. The former machine shop will be turned over to the Research department and used for the purpose of testing and demonstrating the wrapping and packing of all kinds of food supplies in parchment and waxed papers. This line of work is being intensely developed by the Parchment Company.



GROUND PLAN OF THE PLANT OF THE BOGALUSA PAPER CO., INC.

BOGALUSA PAPER CO. STARTS NEW KRAFT MILL

New Paper Bag Factory Will Be Operated in Connection With the New Mill By the Union Bag & Paper Corp.—New Kraft Paper Mill Is Equipped With Black-Clawson Fourdrinier, Trimming 144 Inches—Plant Departments Are Grouped to Allow Economical Transportation

The Bogalusa Paper Company, Inc., a subsidiary of the Great Southern Lumber Company of Bogalusa, La., has recently completed and put into operation its new kraft paper mill, in connection with which a new paper bag factory will be operated by the Union Bag and Paper Corp. Other manufacturing facilities now in process of construction, including additions to diffusers and recovery system, and of wet room equipment with process changes, will not only balance the plant equipment, but also make it possible to handle the different grades of stock through the pulp and paper mills more expeditiously and economically.

A modern salt cake mill has recently been placed in operation by the Southern Acid and Sulphur Company of St. Louis, the salt cake product being utilized by the sulphate pulp mill.

Revised Plant Capacities

The revised plant capacities may be summarized as 100 to 125 tons of sulphate pulp in two grades, 100 to 140 tons of board, and 35 to 55 tons of kraft paper daily. It is expected that the output of the pulp mill will be consumed by the board and kraft mills and that 30 tons daily of the product of the kraft mill will be utilized by the bag factory. The product of the board mill which is at present about 130 tons of high test container is available for general distribution as is also a maximum of 25 tons daily of kraft paper in the various standard weights.

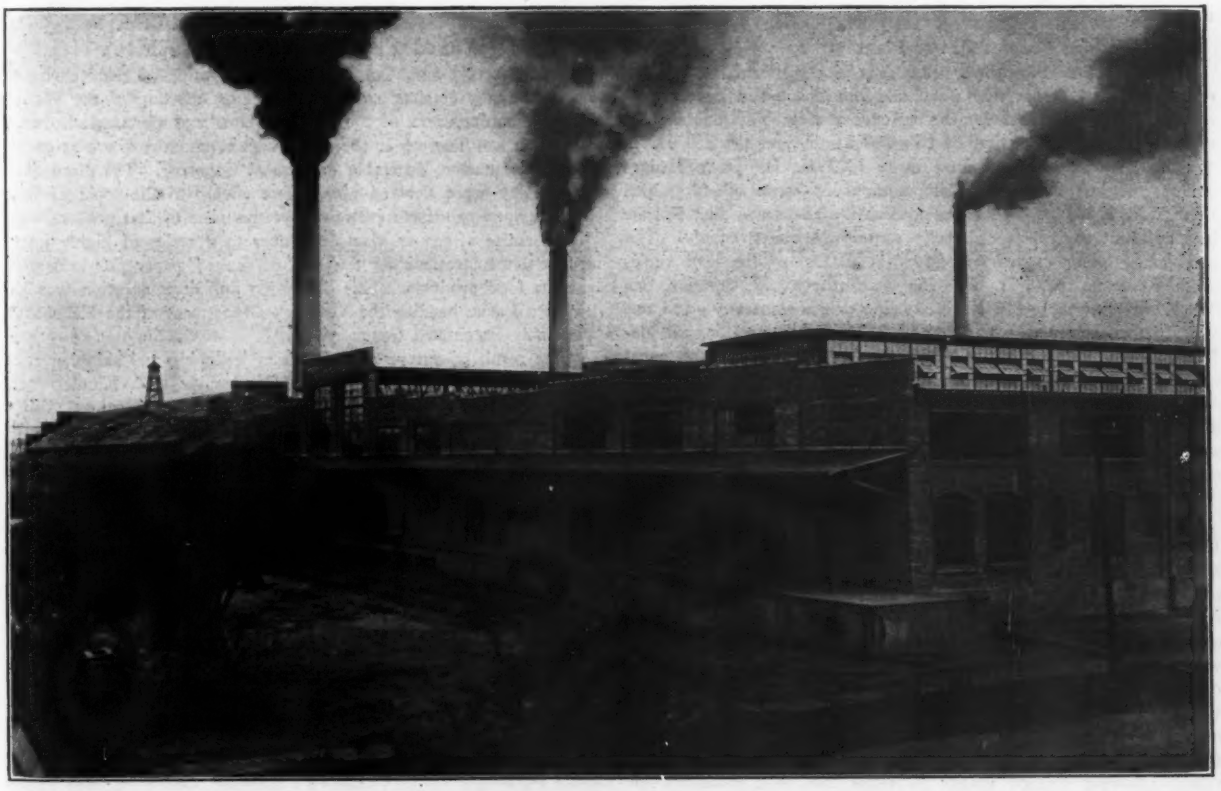
The major departments of the Bogalusa Paper Company are: Pulp wood and fuel preparing; modern sulphate pulp mill with adjacent salt cake mill; steam electric power plant; two machine board mill, and one machine kraft paper mill with new bag factory.

Wood and Fuel Department

The wood and fuel preparing department consists of wood room, with unloading and cutting up sheds, etc., for pulp wood and fuel. The wood room proper contains barking drum, two chippers, double revolving screen, re-chipper "wood hog" for fuel and the usual auxiliary conveyor and other equipment. There are convenient track facilities for unloading pulp wood and fuel wood as it is delivered for the plant from the Great Southern Lumber Company. A portion of fuel is delivered in the form of logs, unsuitable for lumber, and these are put over saw and splitter before going to the "wood hog." All pulp chips and fuel are then conveyed to chip and fuel bins respectively.

Kraft Pulp Department

The sulphate or kraft pulp department is a fairly typical modern unit and includes eight digesters of 3.4 tons capacity per 3½ hours cook. Stock from digesters is "blown" to diffusers of which there are twelve in use, at this writing, on circular arrangement with stock chest in center. Additional diffusers now under construction will double diffuser capacity and provide improved method of



PLANT OF THE BOGALUSA PAPER CO., INC., BOGALUSA, LA.

GROUND PLAN OF THE PLANT OF THE BOGALUSA PAPER CO., INC.

handling stock at the diffusers. The recovery system for the black liquor—waste chemicals from washing the "cook" in the diffusers—consists of one quadruple effect Scott Evaporator and one triple effect Swenson Evaporator, from which the recovery process is continued in recovery room proper, where five furnace units, consisting of disc evaporators, rotary furnace, smelting furnace and green liquor tank, are in operation, with a sixth unit to be added in the immediate future. The Salt Cake, about 525 lbs. per ton of pulp, is added with black ash in smelting furnace for its sodium compounds. The products of the smelt, which are mixed with weak liquor from the cauticising settling tanks in the "green" liquor tanks contain the essential sodium compounds, particularly sodium carbonate, sodium sulphite and sulphate. The "green" liquor is then passed to the cauticising tank whereby the addition of about 550 lbs. of lime per ton of pulp, carbonate of lime is formed and settled out as sludge, leaving the sodium hydrate and sodium sulphite compounds for reuse in digester cooking through elevated measuring tanks for proper proportioning with "black" liquor in similar tank supplied from storage of liquor released from diffusers.

After chips about 20,000 lbs. per digester cook—and liquor are placed in the digester the cycle is completed by "cooking" with steam by either through direct or indirect process as desired. From the stock chests after diffusers referred to above, the two grades of stock are pumped independently to wet room, over four lines of flat screens, in sets of two lines each, and when alterations are completed, screened stock will pass over thickeners and be divided as required, a portion going direct in slush form to the kraft mill mixing tank and washers, and a portion to wet machines for board mill consumption. All screen rejections are passed through a refiner and then to wet machine, making laps for the board mill. There is available an additional wet machine which with cutters, dryers, etc. will produce as required either wet laps or dry sheet kraft pulp.

Power Plant

The steam electric power plant, is under normal conditions operated entirely from fuel wood and refuse supplied by cars and blower from the Great Southern Lumber Company plants. The steam plant proper consists of two 200 H. P. and ten 250 H. P. Walsh & Weidner boilers and three 1000 H. P. Casey Hedges boilers, the last three only being equipped to burn oil for which there is a 60,000 gallon storage available. The wood fuel storage bins adjacent to boilers ordinarily contain 24 hours' supply. The total rated boiler capacity is 5,900 B. H. P. and the load varies from 5,500 to 6,000 H. P. The generator room contains two 500 K. W. and three 850 K. W. engine driven generators and one mixed pressure turbine driven 2,500 K. W. generator, all delivering 440 Volt, 2 phase 60 cycle, current. The total rated capacity is 6,050 K. W. and the working load varies from 3,800 to 4,300 K. W. a maximum of 1,000 K. W. of this amount being ordinarily supplied by the Great Southern Lumber Company, and stepped down from 2,300 volts to 440 volts at the paper company switchboard.

Board Mill Equipment

The board mill equipment consists of two six cylinder Black-Clawson Machines, of 112 and 106 inch trim, each having five sets of baby presses, three main presses, 79-36 inch dryers, two calenders, reels, etc. A rewinder is being installed for use with these machines. Stock for these machines consists of about 40 per cent kraft pulp and 60 per cent waste paper. The waste paper obtained from New Orleans or other markets is usually handled direct from cars to large continuous beater by monorail trolley paralleling railroad tracks, although ample covered storage is provided and served by same trolley for storing and reclaiming. From this beater stock is riffled, allowing foreign matter to settle out, then thickened on couch machines from which it goes to furnish beaters of regular type. Kraft pulp is also further prepared in these beaters of which there are sixteen of 1,500 lb. size for the two board machines. Jordan engines on each machine further refine and defiber the stock—both waste paper and new kraft pulp before it goes to the machines. Ample storage, shipping and finishing room space is available at the dry end of the machines.

New Kraft Paper Mill

The new kraft paper mill recently placed in operation, consists of one Black-Clawson Fourdrinier machine of 144 inch trim width, and includes Bird Screens, suction couch roll on the wire, one suction and two additional presses, forty 48 inch and one "baby" dryer, one calendar and winder. The machine is equipped with Harland electric drive, the speed range being from 200 to 800 feet per minute. The beater room for this mill contains receiving tank for slush stock from pulp mill, two thickeners, ten 1,500 lb. Dilts beaters with 100 H. P. individual motor drives. The stock is further refined by four Jordan Engines, direct driven by 200 H. P. synchronous motors, before going to machine screens. There is a finishing and storage room of ample size which contains two rewinders, one complete cutter, slitter, and laboy, one sheet cutter and one roll grinder. The new bag factory adjacent to and operated in connection with the new kraft mill has a daily capacity of 3,000,000 bags from its 35 machines. There is also a machine shop and two printing presses in this factory.

Economical Grouping

In general the plant departments are grouped to allow economical transportation of material while eliminating any congestion or interference with logical future expansion. Fire protection and mill water supply is ample and safeguarded by being available from several sources. Receiving and shipping raw and finished materials is facilitated in all departments by conveniently located sidings from the New Orleans and Great Northern Railway.

Waxed Paper Manufacturers Meet

KALAMAZOO, Mich., Oct. 27, 1924.—The value of real service to the public was emphasized at the quarterly meeting of the Waxed Paper Manufacturers of the United States and Canada, who were in session last Tuesday in the Parchment community house as guests of the Kalamazoo Vegetable Parchment Company. The discussions of the day were devoted almost exclusively to the topic of how waxed paper manufacturers can serve the users of that product.

The entire afternoon was given over to a series of highly interesting demonstrations of the use of waxed paper for wrapping various food products. This discussion and demonstration was led by Ezra Levin, heading the Research Department of the Kalamazoo Vegetable Parchment Company.

"The result of our research work in wrapping and shipping eggs created genuine excitement and wonder," said Jacob Kindleberger, president of the Kalamazoo Vegetable Parchment Company. "When you stop to consider that $40,000,000 is lost every year in the breakage of eggs handled and shipped, and that much of this can be prevented in the new manner of packing; also that 40 dozen can be packed in a standard crate instead of 30 dozen, and the breakage reduced more than 50 percent, that should mean something to the egg packers of the country."

Following the business session the visitors were taken for inspection of the new mill. Dinner was then served.

The concerns represented at this conference were: Central Waxed Paper Company, Chicago, Ill.; Nashua Gummed and Coated Paper Company, Nashua, N. H.; Kalamazoo Vegetable Parchment Company, Kalamazoo; Coated Paper Products Company, Minerva, Ohio; Newark Paraffine and Parchment Company, Newark, N. J.; Appleford Counter Check Book Company, Ltd., Hamilton, Ontario; Hammersley Manufacturing Company, Garfield, N. J.; Waterproof Paper and Board Company, Cincinnati, Ohio; Package Paper and Supply Company, Springfield, Mass.; Minnesota Wax Paper Company, Minneapolis, Minn.

DUNN SULPHITE PAPER CO. COMPLETES MODEL MILL

Mill Is Equipped With One 132 Inch Yankee Fourdrinier Made By the Beloit Iron Works, of Beloit, Wis., and All the Latest Improved Types of Paper-Making Machinery Made By Representative Manufacturers—Lightweight M. G. Mitscherlich Papers Will Be Produced

The dream of a lifetime has been realized by Theodore W. Dunn, President of the Dunn Sulphite Paper Company, by the completion of his new modern paper mill which began operating on October 1 at Port Huron, Mich.

Mr. Dunn is well known in the paper industry and his host of friends in this country and Canada have watched with great interest the organization of this new company and the erection of a modern plant at the head-waters of the St. Clair River and Lake Huron. Mr. Dunn was associated for a long period of years with the Detroit Sulphite Pulp and Paper Company which prospered greatly under his management. Associated with Mr. Dunn in the active management of the new company are Geo. C. Dunn, assistant secretary and Walter J. Zapf, assistant treasurer, formerly connected with the Carthage Sulphite Pulp and Paper Company, of Carthage, N. Y., M. J. Bauer is the superintendent of the mill.

The new plant of the Dunn Sulphite Paper Company, which will produce light weight M. G. Mitscherlich papers, was designed by Billingham & Cobb of Kalamazoo, Mich., and the contractor was the O. F. Miller Company also of Kalamazoo, Mich. E. W. Smith is the superintendent of this contracting company. The building is 210 feet long and 76 feet wide, made of reinforced concrete throughout with the walls of brick and face brick while the window sashes are steel and the steps and railings are of steel and concrete, thus making the entire building fireproof throughout. The roof of the plant is made of U. S. Gypsum Company roofing and Johns-Manville Asphalt Roofing.

Maximum of Light and Air

Because of the latest design of the building which gives the maximum amount of light and air and the utilization of every foot of space in the most efficient manner, the mill is a model of modern paper making practice which will be admired by practical paper makers.

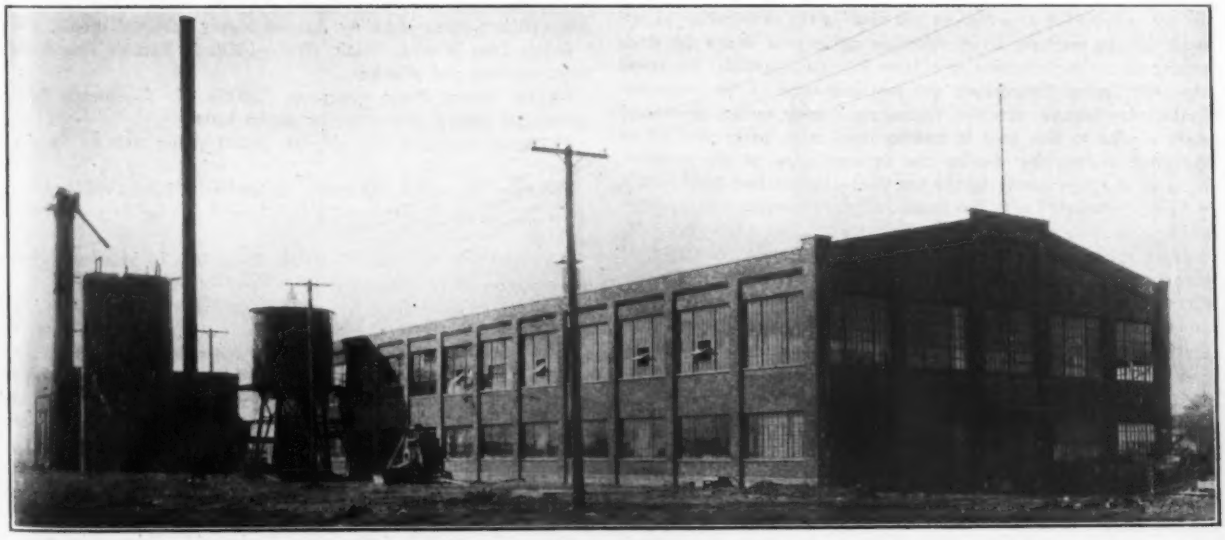
In the basement of the mill are housed, six stock chests forming a single uniform unit which at the same time act as the foundation for the beaters on the floor above with the stock chest agitators arranged compactly beside the chests, the bleach mixing tank where the liquid chlorine is prepared for bleaching the stock, the foundation for the bleacher which is part of the Wolf-Fletcher Bleaching System, filtering beds for filtering the water from the St. Clair River, white water tank which is directly under the Fourdrinier part of the machine where the white water is stored until it is used again when the beaters are dropped, twin variable speed steam engines for driving the paper machine, shafting, direct connected pumps, motors, unloading platforms, electric elevator for carrying the finished paper from the machine room to the lower level, shredder and conveyor for carrying shredded pulp into the hopper of the screw feed of the bleacher.

On the main floor of the mill is housed the 132-inch Yankee Fourdrinier machine made by the Beloit Iron Works of Beloit, Wis., three beaters, two pulp washers, one Jordan, two bleach storage tanks, two motor ventilating fans, fans for absorption system, two screens, wash room and the general offices of the company.

The boiler room of the mill is a separate building also made of brick, concrete and steel. In the boiler room are housed two water tube boilers, boiler feed pumps, and feed water heater. Alongside of the boiler room is a glazed tile coal hopper into which the coal is dropped by a conveyor from the coal pit.

Experienced Paper Makers in Charge

Into the erection of the new plant and the policy and practice of the company Mr. Dunn will put all of the valuable experience which he has gathered in actual practice during his life as a paper maker and the inheritance he has as the son of a paper maker. It will be recalled that George F. Dunn, "Teddy's" father, reorganized the company and rebuilt the mill of the old Detroit Sulphite Fibre Company, about forty years ago. Under the guiding hand of his father Mr. Dunn gained his knowledge of the manufacture of paper and pulp and when the plant of the Detroit Sulphite Paper Company was burned, almost a quarter of a century ago, he rebuilt it. Now with



PLANT OF THE DUNN SULPHITE PAPER CO.

INTERIOR VIEW OF DUNN SULPHITE PAPER CO.

the association is Mr. Dunn's son, George C. Dunn, as representative of the third generation of paper makers and they are going to carry on the high reputation that the Dunn family has made.

Mr. Dunn believes that the first consideration in a successful paper mill is to make the best quality of paper in the most efficient manner. For this reason no effort was spared to obtain the best equipment and to follow the latest practice of making the lightweight sheet of paper in which the mill will specialize. Any manufacturer or superintendent who goes through this plant will find many things of interest and several that are new. Some of the very interesting features in this mill are, the manner of handling the pulp through the disintegrator and preparing the pulp for the bleachers, the modern and efficient method of carrying the pulp to the storage tanks in a high density form, and later from the storage tanks to the beaters where the pulp will be beaten between six or seven percent density, the use of large capacity chests, holding three beaters of stock each, giving ample supply of prepared stock for the paper machine at all times, constant automatic regulation of the consistency of the stock, the use of a jordan of extra large capacity for the purpose of drawing out the fiber in the preparation of the stock for the machine, large screening capacity to insure the stock coming on to the machine free from foreign materials, the latest improved Yankee Fourdrinier wet part consisting of the removable Fourdrinier feature, flexible, regulating copper apron, horizontal shake similar to that used in making hand made paper, the use of individual motors for driving the various parts of the machine, increased drying capacity by the use of the twelve foot dryer which is directly connected with the steam engine, the exhaust steam from which is used to dry the paper, the elimination of vapor from the machine room by the use of an absorption system consisting of heater coils, heater fan and exhaust fan which circulates the air around the dryer, easy controlled electrically driven winder which will take care of the paper no matter at what speed the machine is driven.

Excellent Shipping Facilities

Speedy shipment of finished product and the receipt of raw materials is assured by the spurs of the track of the Canadian National Railway which links the mill to the main line of the carrier. The automatic handling of coal from hopper bottom cars to the storage bunker, and the automatic feed to the weighing scales and the boilers is another feature of this plant. The advantage of a constant stream of fresh air and even temperature is obtained by means of unit heaters and the disk fan ventilating system. Sufficient room has been left in the planning and erecting of the building for a second machine when required.

"The policy of the company," Mr. Dunn states, "will be to make quality the first and foremost consideration. We will use only the highest grade Mitscherlich sulphite pulp and maintain the strength of the pulp by using what is considered the best bleaching process. The high quality of the paper will be insured by the modern equipment we have installed backed up by the knowledge of practical paper makers, and the use of clear, filtered water so essential in the manufacture of high grade bleached papers. Of course we will aim to give the maximum service to our customers at all times."

Builders of the Equipment

The following equipment is included in the plant of the Dunn Sulphite Paper Company.

Ames Iron Works, Oswego, N. Y.—Ames heavy duty, single valve center crank, twin variable speed engines, direct connected by flexible couplings to paper machine shaft, Moore & White speed changes Pickering governor and Davis automatic stop control.

The American Blower Company, Detroit, Mich.—Sirocco Vapor Absorption System including Aerofin copper tube radiation.

Beloit Iron Works, Beloit, Wis.—132-inch Yankee Fourdrinier tissue machine and Winder.

Buffalo Steam Pump Company, Buffalo, N. Y.—Bleach liquor centrifugal pumps of the duplex piston pattern.

Challange Company, Batavia, Ill., 30,000 gallon tank and 20 foot tower.

Columbus Conveyor Company, Columbus, Ohio.—Coal handling apparatus 12 by 12 feet and 73 foot long, handling 40 tons of coal an hour.

Dilts Machine Works, Fulton, N. Y.—Three 66-inch by 60-inch tub beaters with rapid circulating inclined concrete bottoms.

Dodge Manufacturing Corporation, Mishawaka, Ind.—Agitation equipment.

Frederick Iron & Steel Company, Frederick, Md.—Ten pumps including three stock and seven water pumps. These pumps are of the heavy duty single suction semi-open and impeller type centrifugal super-stock pumps, especially designed to handle pulp stock.

General Electric Company, Schenectady, N. Y.—Electrical equipment for pumps and motors.

Hill Clutch and Foundry Company, Cleveland, Ohio.—Spur gear speed transformer.

Hoppes Water Wheel Company, Springfield, Ohio.—Feed water heater.

Ilg Electric ventilator Company, Chicago—Motor ventilator fan.

E. D. Jones & Sons, Pittsfield, Mass.—One Imperial direct connected motor driven Jordan of 25 tons capacity.

Kalamazoo Tank and Silo Company, Kalamazoo, Mich.—Coal storage silo, 20 feet in diameter inside measurement and 50 feet high, composed of fire clay glazed tile.

Kirscher Elevator Company, Toledo, Ohio.—6,000 pound electric freight elevator.

Johns-Manville Inc., New York City, N. Y.—Roofing.

Michigan Pipe Company, Bay City, Mich.—Wooden stock pipe.

Moore & White Company, Philadelphia, Pa.—Two rotary screens complete and one 2 plate auxiliary screen.

Norwood Engineering Company, Florence, Mass.—Concrete filtering plant comprising 4 filters with a capacity of 1,000 gallons a minute.

Palmer-Bee Company, Detroit, Mich.—Shafting for agitator drive.

Ryther & Pringle, Carthage, N. Y.—One paper stock shredder.

Murray W. Sales Company, Detroit, Mich.—Pipe and hangers.

Seybold Machine Company, Dayton, Ohio.—One 84-inch mill type paper cutter.

Trimby Machine Company, Glens Falls, N. Y.—Trimby automatic consistency regulator to control consistency of stock pumped from beater chest to machine chest.

Union Iron Works, Erie, Pa.—Two 153 H. P. water tube boilers and Huber Stokers and also steel stack 48 inches in diameter and 100 feet high.

U. S. Gypsum Company, Lockport, N. Y.—Roofing.

Watson Frye Company, Bath, Maine.—Two Deckers.

Westinghouse Electric Manufacturing Company, Pittsburgh, Pa.—Power panels.

R. B. Wolf Co., New York City, N. Y.—Wolf-Fletcher bleaching system.

A. Wyckoff & Sons Co., Elmira, N. Y.—12-inch wood pipe for water intake.

WESTERN QUEBEC MILLS NOW PRODUCING

The Western Quebec Paper Mills Limited which had been in course of construction at St. Andrews East, Quebec, during the past year, went into actual production in September, the first paper being put over the machine on September 17.

The mills have an ideal location, about two miles from the mouth of the North River and on the lines of the Canadian National Railways. The head office is in the Keefer building, Montreal.

It is worthy of note that the mills are located at nearly the exact point where the first Canadian paper mill was erected and successfully operated, this being back in 1803. This early effort in Canadian paper manufacture, however, was launched on the other bank of the river and timbers of the old original dam can still be seen sticking out of the water at low water. This old time mill was known as the Brown Paper Mill.

The company which is operating the Western Quebec Paper Mills Limited was organized something over a year ago by a group of well-known Montrealers. The officers are: President, R. W. Barclay, who is vice-president of the Ottawa-Montreal Power Company; Vice-President, William Currie of the Dominion Paper Company; Managing Director, C. deWolf Reid; directors, H. M. Banks and J. M. Robertson, both of whom are well known electrical engineers.

The company was organized to manufacture higher classes of light weight specialties most of which are still being imported. Among the lines which will be manufactured are tissues, manifold papers, onion skin papers and other specialties.

Confining its output to the best classes of light weight products manufactured from chemical pulps, the company is producing papers ranging in weight from 24 x 36—10 to 25 pounds.

Since the first paper was put over the machine in September, the quality of the product has been excellent.

The site is not only one of superior suitability but is also one of beautiful scenic environment being on the right side of the North River where there is a very ample supply of the finest soft water which contributes materially to the excellence of the product.

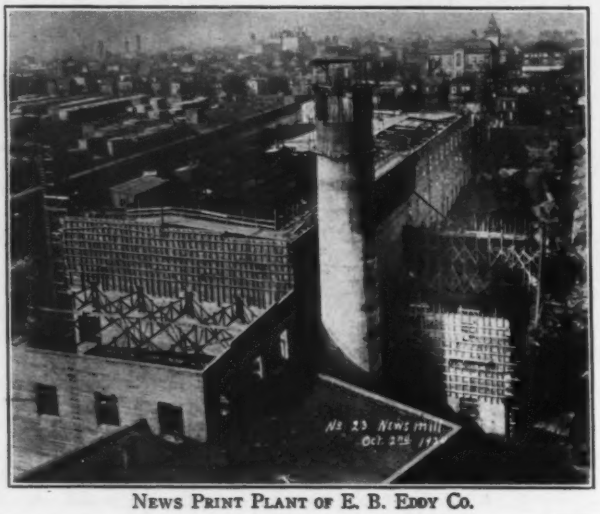
It is stated that the policy of the company will be to do business through the wholesale distributing houses and through converters of the lines which the company will make. It is understood that the sale of the entire output of the mill has been arranged for so that there seems to be no question as to the enterprise being a successful one.

The mills have an annual capacity of 1,800 tons. They are among the most modern mills in Canada, fully equipped and with ample accommodations. In addition to its water power the company has an exceptionally favorable power contract. Facilities for shipping by rail or water are of the best.

WESTERN QUEBEC PAPER MILLS, LTD., ST. ANDREWS EAST, QUE.

NEW PLANT FOR E. B. EDDY CO. WELL UNDER WAY

Paper Mill Buildings Are Being Constructed To Receive One 232-Inch High Speed Machine as the First Installation—Present Sulphite Mill Extensions and Improvements Provided For Two Additional Digesters—Plan To Have Complete New Installation in Operation April, 1925



NEWS PRINT PLANT OF E. B. EDDY CO.

The new paper mill, together with extensions and improvements to the existing plant of the E. B. Eddy Company, Ltd., at Hull, Quebec, is now well under way, remarkable progress having been made since the first sod was turned on June 25 of this year.

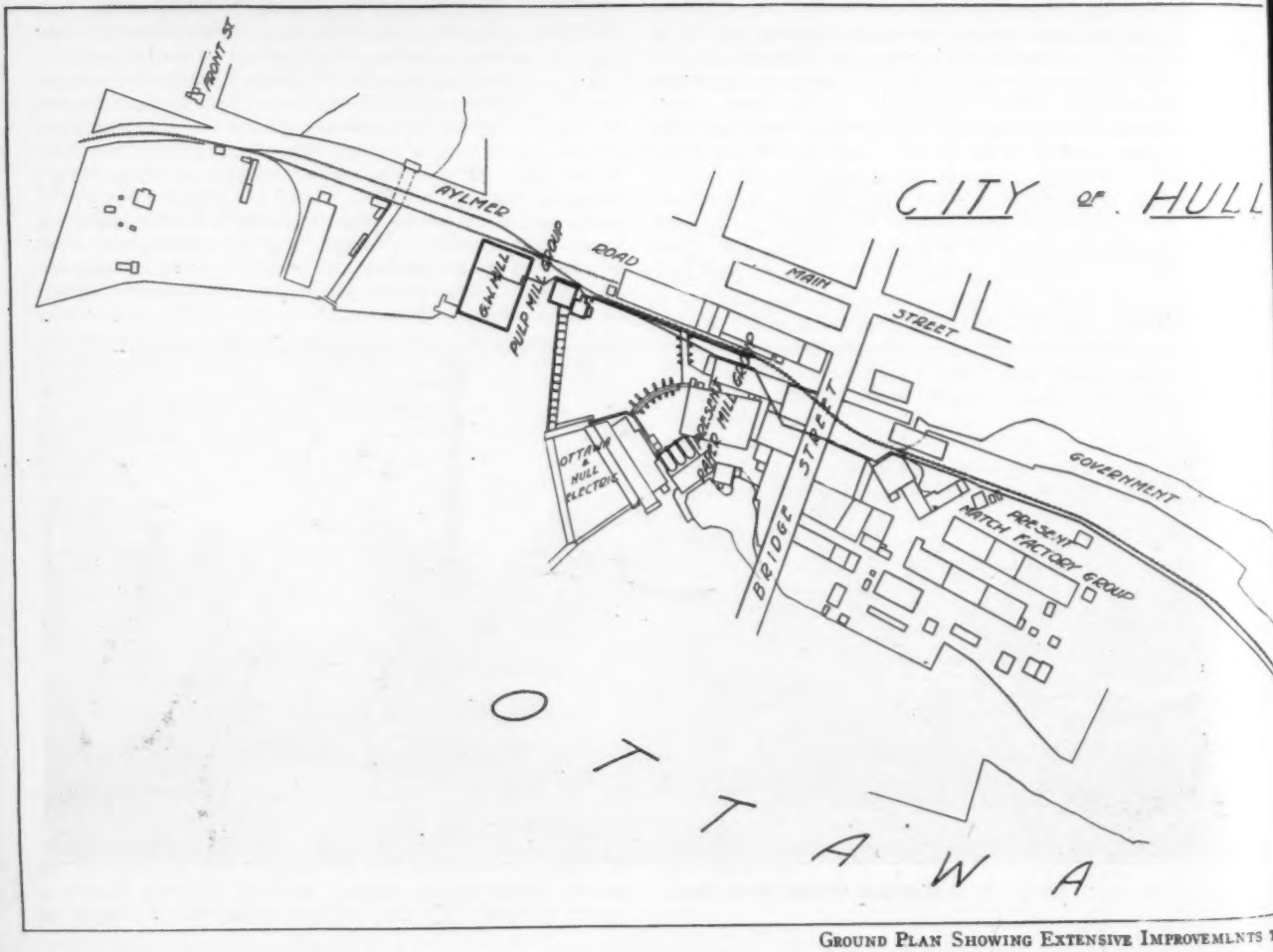
The paper mill, a structure over 600 feet long, including train shed, finishing, machine and mixing rooms, has attained its full height, interior and roof steel is in place, and final work on the roof decks, together with interior installation, is now in progress.

To Have 234-inch High Speed Machine

The paper mill buildings are being constructed to receive one 234-inch high speed machine with electric drive as the first installation, design being, however, for two machines, with futures left for two further installations.

The present sulphite mill extensions and improvements, consisting of two additional digesters with new screen, blow pit, bleach and knotter rooms, is completely under roof and equipment installation is now being proceeded with.

Acid plant improvements, including rearrangement of burner room with new gas coolers, acid handling and storage system, are nearing



GROUND PLAN SHOWING EXTENSIVE IMPROVEMENTS TO

completion, and will, when finished, thoroughly modernize in every particular the acid-making installation.

Buildings for new drum barker installation at sulphite mill are practically completed, two drums to be accommodated at the start with futures left for additional units.

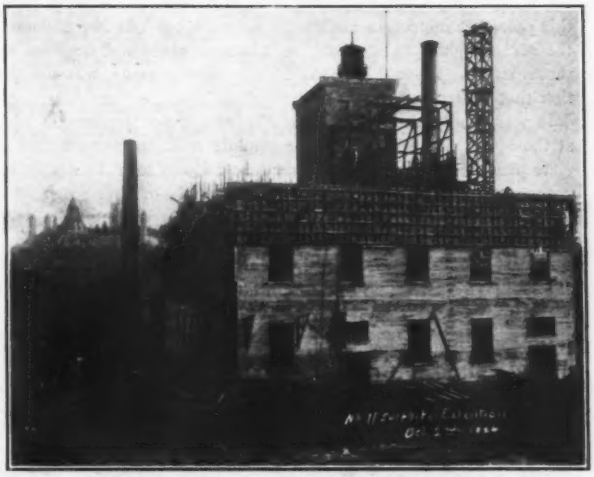
Present wood room rearrangement is to be proceeded with this month, and includes the elimination of knife barkers, installation of new chippers and chip screens, together with relocation of slashers and log haul-ups.

Company Started in 1851

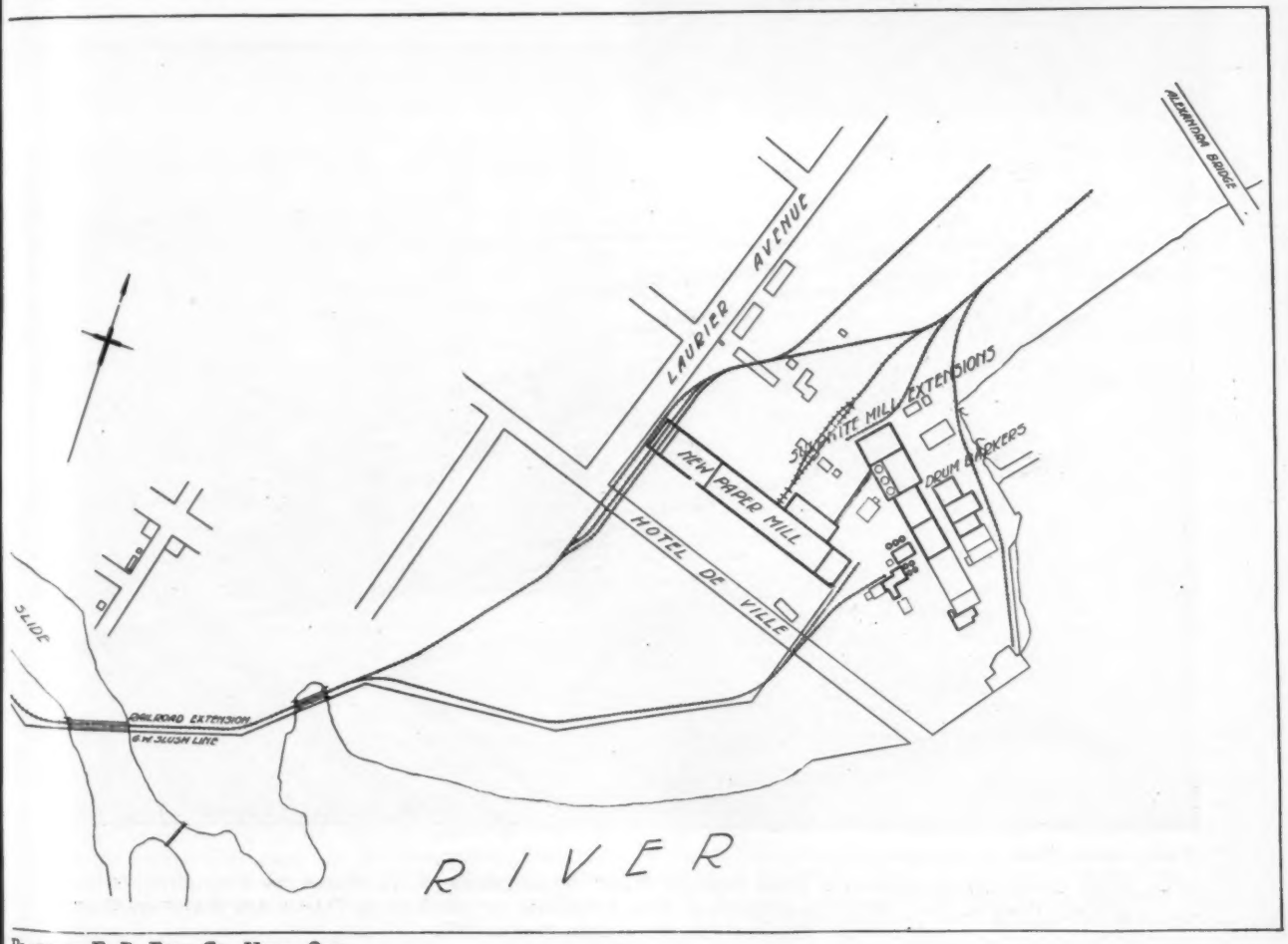
The E. B. Eddy Company, Ltd., is one of the oldest established pulp and paper making organizations in the Dominion, its activities having begun in the year 1851, and have continued without interruption through the past 73 years. The company has a most excellent site of approximately 75 acres on the north side of the Ottawa River at Hull, Quebec, extending from above Chaudiere Falls, and roughly following the shore line, with its eastern boundary adjacent to the north abutment of the Alexandria Bridge between Ottawa and Hull.

The company has at present within this site an extensive pulp and paper plant, and one of the largest match plants in operation; a fully equipped sawmill and a modern hydro-electric development, together with other minor activities, the different plant buildings and accessories extending from the west to east boundaries of the property.

The present paper conversion and converting plants, together with ground wood pulp mill and hydro-electric development, occupy the western section of the site, which is at the upper level above Rideau Falls. At the lower or eastern end of the site, the present sulphite mill is located, approximately three-quarters of a mile from upper



Sulphite Plant of E. B. Eddy Co.



Plant of E. B. Eddy Co., Hull, Que.

location, there having been no direct railroad connection between upper and lower sites.

Improvements Decided Upon

Due to the continued demand that has been made on the present property, and also taking into consideration its age, the directors of the E. B. Eddy Company, Ltd., recognized during the early part of this year that improvements should be made, but whether to improve the present plant as a whole, or add new plant and improve only those parts that would best stand such improvements, was the question that confronted them.

It was finally decided to start the new paper conversion plants at the lower site, adjacent to the sulphite mill; to improve this sulphite plant to full capacity; to add a new steam plant to supply both paper and sulphite mills, and to carry the railroad through from the upper to this lower site, with spurs to the different buildings where needed throughout its length.

Under this arrangement, sulphite slush will be available at the new paper mill, but as the ground wood pulp mill is at the upper site, a pipe line following the new railroad is now under way through which the ground wood slush will be supplied direct from the ground wood mill to paper mills, a distance of about three-quarters of a mile.

The railroad extension of approximately one mile includes three bridges and some thousand feet of trestle through government slide and other waterways, this rather difficult location having prevented its extension during earlier years. With paper conversion plants at the lower site, however, direct railroad communication is essential, and the standard gauge line now under way will provide for all present and future requirements.

In addition to the ground wood slush line and railroad at the upper location, a second drum barker for the ground wood mill is included, buildings for which are now under construction. This drum barker installation, as well as its mate at the lower site, will be equipped with press for preparing bark for fuel and will be of an improved type throughout.

Output Will Be Greatly Increased

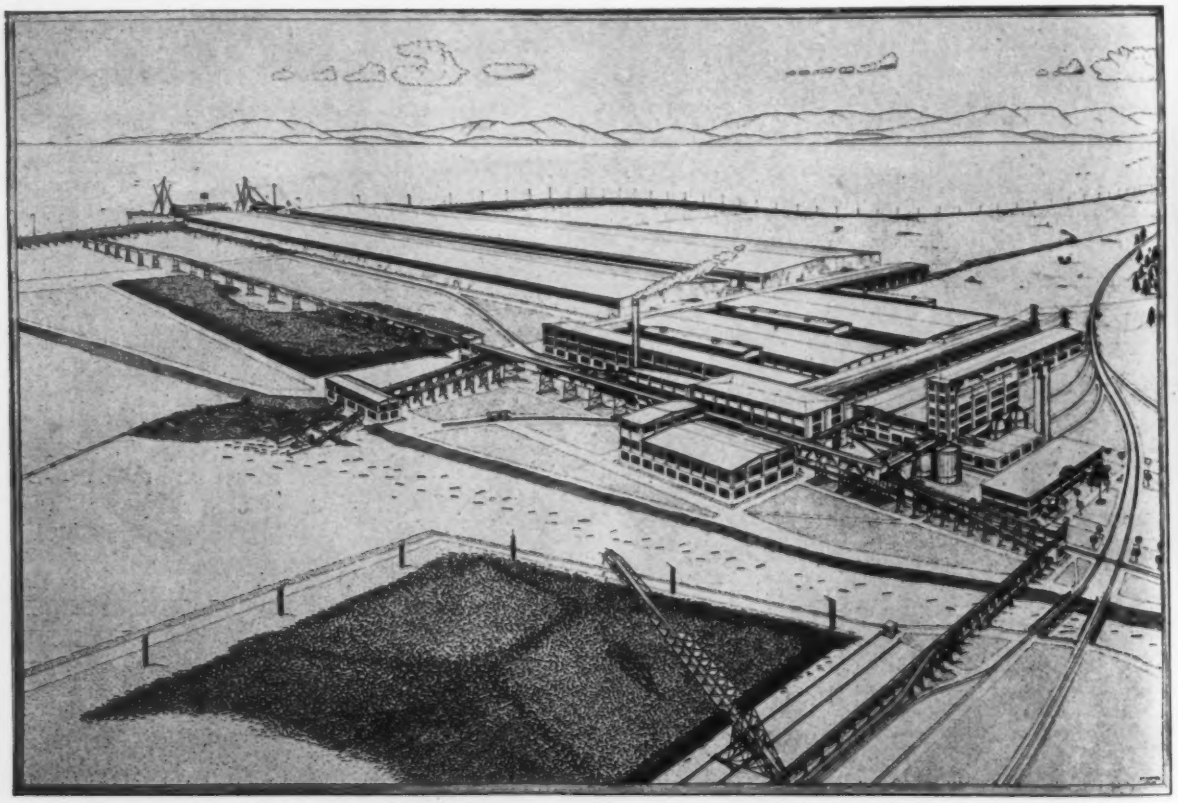
With the completion of the new work, together with extensions and improvements now under way, the pulp and paper production of the E. B. Eddy Company, Ltd., will be greatly augmented and sales proportionally increased. All plans are laid to have complete new installation in operation during April, 1925, and if the progress made during the three past months is kept up, complete operation during the month mentioned appears entirely feasible.

George H. Millen, president, who has for so long guided the destinies of the E. B. Eddy Company, Ltd., is keeping a watchful eye on all activities under way. J. T. Sheriff is vice-president and in charge of finance and sales policy. Anglin-Norcross of Canada, Ltd., are the general contractors for buildings and railroad, and H. S. Taylor, consulting engineer, is in charge of engineering and design.

To Open Paper Warehouse at Houston

[FROM OUR REGULAR CORRESPONDENT.]

HOUSTON, Tex., October 27, 1924.—The L. S. Bosworth Company will open a wholesale paper warehouse here. The company will handle fine papers only.



Courtesy of News Print Service Bureau

PLAN OF THE NEWFOUNDLAND POWER AND PAPER COMPANY PLANT AT CORNERBROOK, N. F., WHERE THE FIRST MACHINE IS EXPECTED TO MAKE PAPER IN APRIL, 1925. FOUR MACHINES WITH A CAPACITY OF 120,000 TONS YEARLY ARE SCHEDULED TO BE IN OPERATION BY THE LATTER PART OF 1925.

IMPROVEMENTS AT BRYANT PAPER CO. PLANT

Will Erect Model Machine Shop and Salvage Plant—Will Be Located as Near as Possible In the Center of Mill Activities, Making It Accessible From All Operating Divisions At a Minimum of Time and Expense—First Unit of New Central Power House In Successful Operation

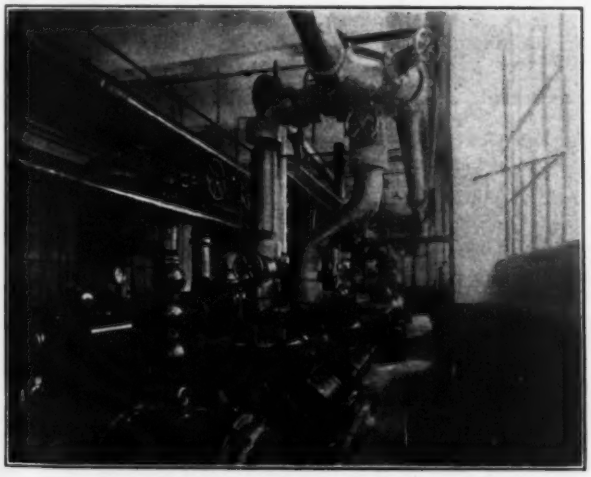
The erection of a model machine shop and salvage plant is now being planned at the Bryant Paper Company. While it will be several months at the most before actual construction work is under way, the details are now being worked out by Felix Paggenstecher, president of the company and E. C. Rutz, superintendent of power and maintenance.

This structure, which is part of expansion campaign No. 1, formulated by V. D. Simons, consulting industrial engineer of Chicago, is the final step in that program, which included a general consolidation of the power facilities for the Superior, Bryant and Imperial divisions in one modern power plant and the erection of a modern type pulp mill at the Superior division, capable of converting waste book papers into raw stock, sufficient to supply the needs of the seven paper machines in the Bryant and Superior divisions.

Accessible From All Operating Divisions

The proposed salvage plant will be located as near as possible in the center of mill activities, thus making it accessible from all operating divisions at a minimum of time and expense. The machine shop will be of the most approved type, one feature being its ability to successfully grind rolls weighing as much as ten tons. To handle these huge rolls economically and speedily a monorail system is being worked out and will without doubt be made one of the features of this unit of the huge industry.

The completion of the new power plant has made possible the conversion of four structures, one time housing batteries of boilers,



Battery of Pumps, Bryant Paper Co.

to other purposes. The old boilers have been torn out in most instances. At the Superior division the power unit is to be reroofed and a new concrete floor laid and the building used as a paper stock warehouse. One of the power plants at the Bryant division will also be converted to storage purposes. Two other buildings will be dismantled.

Passed Experimental Stage

The new conversion plant at the Superior division has long since passed the experimental stage. It has demonstrated that it is capable of supplying an ample quantity of high grade, well washed stock to meet all the needs of both the Superior and Bryant divisions.

It is supplied direct by one sorting room and has eliminated three other similar departments, while one giant washer does the work formerly requiring about thirty washers.

The success of this conversion plant has made possible a multitude of changes in the Bryant division, consisting mostly of the abandonment of machinery, washers, cookers and rotaries now made obsolete.

Steam Pipe Line from Central Power Plant

For several months gangs of men have been engaged in cleaning up and scrapping that equipment.

The first unit of the new central power house, a reinforced concrete and steel structure, is 111 by 103 feet over all. It has been in steady operation for six months and is designed to be expanded eventually from a capacity of 3,000 kva to 8,000 kva and will at that time replace five separate boiler plants and a large number of engines in various parts of the several mills.

The initial equipment consists of four boilers, a 2,000 kw. uniflow engine generating unit and a 500 kw. auxiliary non-condensing turbo-generator, to be duplicated in the near future, with the exception of the turbine unit. At that time with all the mills electrified, the power and heating steam will practically balance. The operating force will be reduced, duplication of coal and ash handling will be eliminated and with the concentration into one large modern plant, greatly improved combustion and high boiler room economy is anticipated.

Initial Boiler Battery

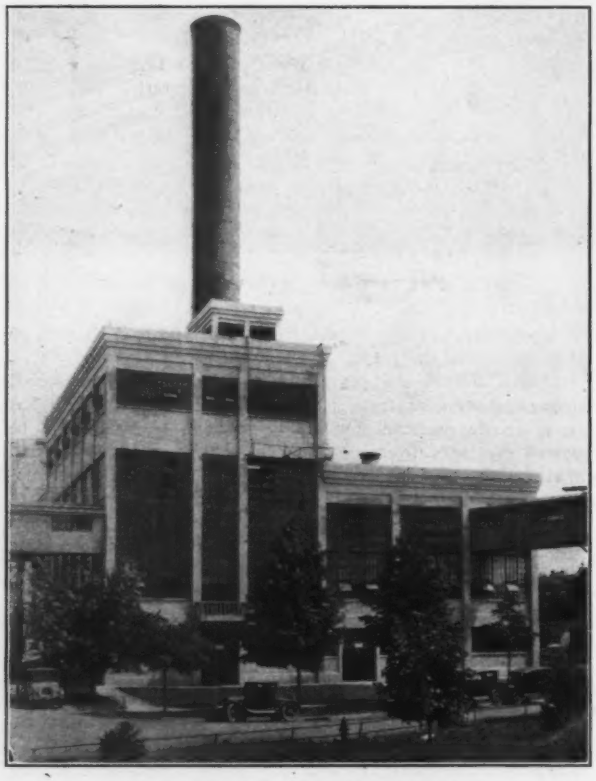
The initial boiler battery consists of four 500 horse power, Stirling water tube units, product of the Babcock & Wilcox Company, capable of operation at 200 per cent capacity. These are set singly in a row and the duplicate installation will continue this to a row of eight boilers. Babcock superheaters are set between the first and second banks of tubes. An outlet serving two boilers in common carries off the gases to an economizer on the floor above or through a bypass directly to the induced draft fan located centrally to serve a steel stack from the four boilers. Each boiler is served by a Frederick Underfeed stoker, Combustion Engineering Corporation's make. Coal is handled by the R. H. Beaumont Manufacturing Company's skip hoist system with belt conveyor and automatic tripper over suspended coal bunker, the whole having a handling capacity of 90 tons per hour. The overhead coal bunker will hold 400 tons.

Ashes are removed by special equipment, product of the same concern. Boiler control is by means of forced draft and induced fans, manufactured by the Clarage Fan Company, Kalamazoo. These fans are driven by Westinghouse motors. Green Fuel economizers, set two of two banks each are installed.

The piping throughout the boiler room is the high pressure steel type, with steel valves and fittings and Sargol welded joints, all designed for 450 pounds pressure. The piping was manufactured by the Crane Company. The steam line as well as the hot water line and electric cables are extended to the various divisions of the mill supported on structural steel bridge work. Rollers and slides and usual pipe supports are in evidence, while a walkway extending the length of the bridge gives ready access to any point of the various lines.

Main Generating Units

The main generating units include a duplex uniflow, 28 by 48, made by the Nordberg Manufacturing Company, Milwaukee, also a 2,500 kva generator from the Westinghouse Company and a one turbo-generator, product of the Allis-Chalmers Company. The auxiliary electrical equipment was furnished by the Westinghouse Company.

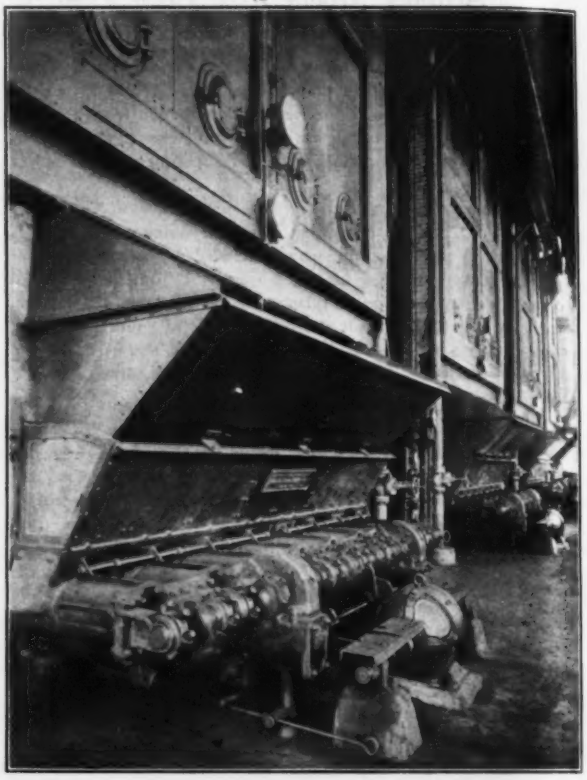


EXTERIOR VIEW OF POWER PLANT

An elaborate system of pumps is also in evidence, including boiler feed, service supply tank, economy circulating and heater condensate types. The two boiler feed pumps were made by the Worthington Pump and Machine Corporation, the others by the Union Steam Pump Company, Battle Creek. In connection with the water supply, there is a Permutit Company's lime and soda softener, with a capacity of 36,000 gallons per minute.

A feature of the power plant that should prove of inestimable value in maintaining high economy and lowering operating costs is a most complete system of metering. Provisions have been made to weigh the coal, meter the feed water, measure the steam flow from each boiler, the output of steam to the several services outside the power plant, and the steam to the station auxiliaries. Other flow meters measure the steam to the engine and turbine units.

In the boiler room operating conditions are visualized to the firemen by a complete equipment of indicating and recording instruments, all of which are mounted on panels at the boiler fronts and arranged between the settings in full view of the boiler room attendants. There are instruments to indicate the steam pressure, the steam flow in horse power from each boiler, the total steam temperature and the temperature of the gases in the last pass of the boiler. Three point gauges show the air pressure under the grates, the draft over the fire and the draft in the last pass of the boiler. Two pointer gauges give the draft on the breeching and stack side of the economizers. There are also multi-pointer gauges for giving the temperature of the gases and also of the water entering and leaving the economizers, a recording thermometer on the feed water and a CO recorder for each boiler. Here also are ammeters showing the load on the fan and stoker motors and push button control for starting and stopping with rheostats to effect manually small changes in speed. Full automatic control equipment for the motors is mounted on a special board in the basement. Republic Flow Meters Company, Foxboro Company, Inc., Taylor Instruments Company are among the concerns furnishing the above noted features.



SHOWING STOKERS AND FRONT OF BOILERS

Other items noted in the plant are a 25 ton Whiting Corporation crane; ash cars, Chase Foundry and Manufacturing Company; oil filtering and storage system, The Griscom-Russell Company; storage battery tractor, Koppel Ind. Car and Equipment Company; boiler settings, Edward Nelson & Co.

H. L. Vanderhorst, Kalamazoo, had the contract for the erection of this power plant. F. P. Gilligan was the resident engineer on the job.

CONTINENTAL HAS BIG CONSTRUCTION PROGRAM

New Machines Being Added and Other Important Improvements Being Carried Out at All of the Mills of the Company—When Expansion Work Has Been Completed, Company Will Have a Total of Twenty-Seven Paper Machines, Making Over Four Hundred Tons of Paper

The Continental Paper and Bag Mills Corporation is making great strides in its construction program for the current year. According to Vice President Kuhe, the big features of this program are the building of a concrete dam 540 feet long at the Menominee Mill and the installment of three mammoth Yankee machines for the manufacture of machine glazed kraft and sulphite papers. One of these machines will be placed in the mill at Marinette, Wis., and two in the mill at Rumford, Me. With the Yankee machine which has previously been in operation at Marinette, this will give the Continental four machines making machine glazed papers, with a total production of approximately 80 tons per day, putting it far in the lead in the manufacture of machine glazed papers.

While this may seem a large additional tonnage of this class of product to put on the market at practically the same time, the company has definite plans how to dispose of it without interference with the marketing of its other products or creating excessive competition.

Construction Program—Rumford, Me.

No. 3 Machine at the Rumford Mill has been dismantled and shipped to the Beloit Iron Works for remodelling. When this machine is remodelled it will be installed in one of the other mills of the Company, probably in one of its Western mills. This machine was built by Rice, Barton & Fales as a News machine and installed in the Rumford Mill in 1897. At the time of its installation this was the largest machine in the world and will be recalled by many of the old-time paper makers. As this machine was built for making newsprint paper, it is not at the present time well adapted to the grades of paper made in the Rumford Mill, this Mill running entirely on bag papers, kraft and manila wrappings.

To replace the machine which has been taken out, two Yankee machines have been ordered from the Beloit Iron Works. These two machines will be run entirely on machine glazed papers and are designed to operate at speeds up to seven hundred feet per minute, making high grade sulphite and kraft machine glazed papers. The machines are equipped with wires 132 inches wide by 50 feet long, two presses and a Yankee dryer 12 feet in diameter, 132 inch face. It will also be equipped with one five roll stack of calenders, two drum reels and Cameron Machine Company's latest type of two drum winders.

The Fourdrinier part will be of the very latest design and equipped with the Beloit Iron Works Company's patented removable Fourdrinier so that wires can be changed with the least loss of time and minimum amount of labor. The machine will also be equipped with Hawley pick-up felts in order to eliminate loss from brake when operating at high speeds on light weight papers.

These machines will be driven by 120 H. P. variable speed motors supplied with power from individual direct current generators, the generators being driven from 350 H. P. Harris Corliss type steam engine already installed. This variable speed drive will permit operation at a speed ranging from 85 feet per minute up to 700 feet per minute. The entire electrical equipment driving this machine will be supplied by the General Electric Company.

The dryers will be equipped with Briner economizers and air supply and exhaust hoods, fans, etc. supplied by the J. O. Ross Engineering Corporation. All auxiliary equipment will be driven by direct connected motors.

To supply the necessary beating capacity new beaters will be installed, also Majestic Jordans, this equipment being supplied by E. D. Jones & Sons Company.

In order to supply the extra power for the beater room and the new machines, a new water wheel is being installed in place of one of the wheels formerly used to drive grinders manufacturing ground wood pulp. This new wheel consists of a pair of 36 inch type N runners made by the S. Morgan Smith Company, having a capacity of 2000 H. P. at 266 R. P. M. Generator of 650 K. V. A. capacity will be driven by this pair of wheels direct connected to the water wheel. This generator will be furnished by the General Electric Company and will run in synchronism with the electric power equipment now installed and which consists of one 1250 K. V. A. generator, one 625 K. V. A. generator, and two 500 K. V. A. generators.

The present electrical units will be connected with the new unit through a new switchboard, which is being installed in such manner that the entire generator equipment will be automatically controlled from this switchboard.

It is expected that the two Yankee Machines will be in operation by February.

The Rumford Mill has also just installed a 12 x 45 ft. Paulson Barking Drum, made by the Manitowoc Engineering Works, at its Bemis Plant where wood for the Rumford Mill is prepared. This wood will be cut on the operations now in process on Davistown and Stetsontown Townships.

When the above improvements have been completed, the Rumford Mill will be equipped to make 40 tons a day of high grade machine glazed papers in both kraft and sulphite, 110 tons of high grade kraft wrapping and bag papers, and 60 tons of sulphite bag dry and water finish papers. This mill also has a capacity of 150 tons of high grade sulphite pulp and 50 tons of ground wood pulp.

Marinette and Menominee Mills

Besides the many minor improvements being made in the mills at Marinette and Menominee in the way of labor, stock, and steam saving devices, the company has under construction this year a new concrete dam with two additional hydroelectric units replacing the old dam at the Menominee Mill and is installing a second 132-inch Yankee Machine at the Marinette Mill, and also a Tower Acid System at the same place.

Menominee Dam

The original dam which was built in 1862 was of timber crib construction and had out-lived its usefulness. The new concrete dam is being built immediately below the old one on the solid rock and is approximately 540 feet long, consisting of twelve Taintor Gates, 20 feet wide and 15 feet deep for passing flood water. Three sections of spill way each 50 feet long, a fish way on the Menominee side and high dam and core-wall on the Wisconsin end. The Taintor Gates are to be operated by an electrically operated power hoist with an auxiliary hand operated hoist for emergencies. The height of the dam, from the bed rock to the top, averages 28½ feet and is 23 feet wide on the base.

On the Michigan end there is being constructed two additional flumes as an extension to the existing ones as part of the dam. These flumes are to take two new hydroelectric units each consisting of a 500 K. W. Allis-Chalmers turbine and generator, the runners of which are of the high speed type set in steel plate hydrocones. The operating head on these units will be from eleven to thirteen feet and speed 150 R. P. M. The units will be provided with Woodward electrically operated governors and pumps and excitation provided by two small M. G. sets. The power house taking in these flumes is to be of reinforced concrete and will be approximately 70 feet long and 32 feet wide. In this building, in addition to the

operating panels for the generators, will be installed the control panels and switch board for the Menominee Mill. With the completion of these two units a transmission line will be built between the Menominee and Marinette Mills, a distance of a little over a mile, tying in all sources of power from both places to a common line. For closing off the flumes there will be provided two steel gates operated by a small crane, and the power house will also be provided with a crane of 20 tons capacity. The flumes and power house are being constructed of reinforced concrete and steel with a gypsum roof, steel doors and sash.

The major portion of the dam, which is of concrete, is of monolithic construction.

The work on the reconstruction of the dam and flumes is being carried out by C. R. Meyers & Sons, contractors of Oshkosh, Wis., under plans prepared by the Company's engineers. Work is progressing speedily and completion is contemplated for November first.

New Yankee Machine—Park Mill

The new 132-inch Yankee Machine, which is being installed in the Park Mill is to be located in a new building built between the existing walls of the number one and number two Machine Rooms. The building will be of reinforced concrete above the existing walls with a redwood roof carried on steel trusses. The machine proper will be carried on reinforced concrete tracks with deep girders extending over the present engine room.

The machine is being built by the Beloit Iron Works and is to have all the latest improvements in machine design, such as removable Fourdrinier, motor driven shake, patented apron boards, etc. The dryer is to be 12 feet diameter, 132-inch face and will be provided with a second pressure roll. The machine will be equipped with Bird showers, Nash Suction Pumps and a five roll calender stack. The winder is to be the Cameron Machine Company's model No. 1, 127-inch trim with 131 drum face with ten slitters and a motor driven cutter grinder.

The drive is arranged for a paper speed of from 125 to 700 feet per minute. The variable speed line will be driven by an Ames 12 x 14 inch twin engine and the suction pumps, fan pumps and other auxiliaries of the constant speed and will be driven by individual motors.

The dryer is to be equipped with an all metal hood and a Briner economizer furnished by the J. O. Ross Engineering Corporation.

A Save-all system and Whitewater chest will be built in as part of the track foundations, and for the machine chests part of the existing drainer chests will be utilized.

The construction work is being carried out by the Company's forces and it is expected that the machine will be ready for operation by the last of the year.

Tower Acid System

At the Marinette Mill a Tower Acid System is being erected by the G. D. Jenssen Company, the towers of which are being located in the present acid building. The system will have an acid making capacity for 50 tons of sulphite, and will include a new cooler connected to the existing burner.

There are to be two charging sulphur towers each 72 feet high and 7 feet diameter inside the lining. It is expected that this system will be placed in operation by January 1, 1925.

With the completion of the construction work now proceeding at the Rumford, Me., and Marinette and Menominee Mills, the Continental will have: 4 machines on machine glazed kraft and sulphite specialties, 6 machines on tissue products, 7 machines on Fourdrinier kraft bag and wrapping paper, 10 machines on sulphite bag, dry finish and water finish wrappings, a total of 27 paper machines making over 400 tons of paper.

Approximately 175,000 cords of wood are cut annually to produce the raw material required and 25,000 H. P. are generated daily to furnish the power to drive these 27 machines and the enormous paper bag and tissue converting plants owned by the Company. The Company's mills and factories are located as follows: Rumford, Me.; Marinette, Wis.; Menominee, Mich.; Oconto Falls, Wis.; Ashland, N. H.; Watertown, N. Y.; Greenwich, N. Y.; York Haven, Pa.; Brooklyn, N. Y.; Ottawa, Ont., Canada; Elsas, Ont., Canada.

The Continental is the largest factor in the wrapping paper and paper bag business on this continent and probably in the world. It has woodland reserves of approximately 1300 square miles, insuring a sufficient supply of pulpwood far into the future, and its mills are located advantageously at strategic points for raw material and distribution.

The company has a highly trained and efficient sales organization with offices and warehouses all over the U. S., in Canada and in foreign countries.

Oliver Filtration

The subject of Oliver Filtration is fully discussed in Bulletin No. 15, just published by the Oliver Continuous Filter Company, of San Francisco, New York and London.

The bulletin gives a general description of design, construction and operation of Oliver continuous filters. On the first page is shown a picture of one of the original Olivers in use from 1908 to 1917, when it was replaced by large size Olivers. Illustrations show the filter drum covered with filter medium in one piece, but with drum divided into sections so that it actually consists of a number of individual filtering units; the method employed for agitating sludge to assure uniform cake and prevent possibility of solids in the sludge settling out; the method of applying wash to cake; how filtrate from different portions of the filter cycle can be separated; the cake as it reaches the scraper being discharged from the Oliver; part of Oliver installation at Hollinger Consolidated Gold Mines, Ltd.; Oliver installation for dewatering activated sewage sludge.

A list of materials handled in Olivers is given, as well as lists of the different sizes manufactured. There are also descriptive illustrations of dry vacuum pumps, air compressors, centrifugal pumps and worm gear speed reducers.

In the pulp and paper industries Olivers are used for brown stock washing in soda and sulphate pulp mills, thickening soda and sulphite pulp before bleaching, bleach washing in soda and sulphite pulp mills, combined decker and save-all on soda, sulphit and old magazine stock, handling lime mud in soda and sulphate pulp mills where reburning is practiced and where lime carbonate goes to waste or is used for agricultural purposes.

Aetna Paper Co. Adds New Equipment

The Aetna Paper Company, of Dayton, Ohio, has just completed the installation of considerable new equipment. A new Black-Clawson Fourdrinier has been substituted for one of older style formerly in use. This new Fourdrinier is so constructed with movable feature, enabling the wire to be changed in a much shorter length of time than formerly, and, in addition, the patented forming board, a new suction roll and ball-bearing table rolls, make it one of the most modern and completely equipped Fourdriniers producing bond papers.

The entire machine has been rebuilt with a new first and second press, and a new winder has been added. Several new beaters have been installed to insure longer beating time, thereby adding much to the improvement of the paper.

The Aetna mill has also placed orders for type E stokers, manufactured by the Combustion Engineering Corporation, to equip the entire boiler plant, which will mean a great reduction in coal consumption.

With all this modern and up-to-date equipment, the Aetna will be one of the most complete plants in this country and will continue the manufacture of air and loft dried bond and ledger papers, which it has produced successfully for the last twenty-eight years.

PIONEER PAPER CO. BUILDS FELT MILL AT LOS ANGELES

Plant Located in Southeastern Section of Los Angeles—Represents an Investment of More Than $2,500,000—Is Equipped With 122 Inch Black & Clawson Four Cylinder Roofing Paper Machine, Dilts Machine Works Beaters and Other Standard Makes of Paper Mill Machinery

Confident of the future growth of Southern California and the Pacific Coast, the Pioneer Paper Company, of Los Angeles, manufacturers of building and roofing papers, has expended more than $1,350,000 in the expansion of its plant in the Vernon industrial district of Los Angeles.

The expansion program included the construction of a chip board and felt mill, additional storage warehouses and equipment, and a $100,000 administration building. The plant, located in the southeastern section of Los Angeles, covers 18 acres and represents an investment of approximately $2,500,000.

Founded Thirty-Six Years Ago

The Pioneer Paper Company was founded thirty-six years ago by Willis G. Hunt, as a jobbing house for roll wrapping paper. Expanding its activities the company began manufacturing building and roofing papers, and to-day manufactured products include prepared roofing, felts, insulating papers, waxed papers and chip boards. More than 1,800 square feet of roofing is turned out every 24 hours. Pioneer products are shipped to Japan, China, Mexico, Australia, New Zealand, Hawaiian and Philippine Islands, and the West Indies.

The down town office and coarse and wrapping paper divisions of the Pioneer Paper Company, 247 S. Los Angeles street, has been sold to the firm of Blake, Moffitt & Towne and the company is now confining its production to the manufacture of roofing and building papers exclusively.

First Mill of Its Kind in Territory

The felt mill, the first to be erected in this territory, manufactures roofing felt, sheathing paper and light weight chip board.

The plant is equipped with one 122 inch four cylinder machine built by Black & Clawson, of Hamilton, Ohio.

The machine is operated by a Chandler & Taylor built engine. The beaters and iron tubs are of the latest design; they are products of the Dilts Machine Works Inc. of Fulton, N. Y. The stuff pumps used are from the Beloit Iron Works and the Save-Alls from the Green Bay Foundry and Machine Company. Installation was in charge of James L. Carey of Chicago.

Beater Room

Sixty tons of felt are turned out every day by the machine in the chip board and felt mill.

The rag storage plant is equipped with electric traveling cranes, and is 150x225 feet. A concrete building 30x40 and 40 feet high is

View of Plant and General Offices of Pioneer Paper Co., Los Angeles, Cal.

used for the cut rag storage. Two Grant, Taylor Style No. 20 rag cutters are used.

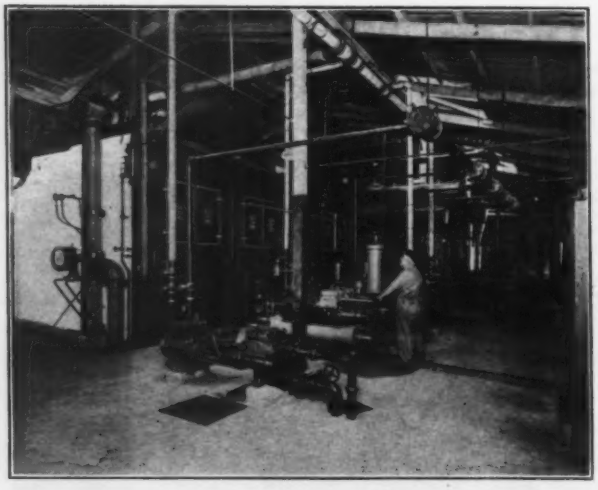
Belt conveyors operate from the cutters to the cut rag storage and from there direct to the beaters. The product is made either into rolls of shingle roofing, coated with refined asphalt and covered with gravel, sand or slate, or it is coated under a different process of asphalt and made into waterproofing and insulating papers.

INTERIOR VIEW OF FELT MILL

Wells providing 750,000 gallons of water have been developed on the property.

The mill is 60x250 feet in size, the machine room 60x100 feet and the beater room 50x100 feet. All are brick buildings, with saw-tooth style roofs and well lighted.

The daily capacity of the roofing factory is 16 cars. The daily



REFINERY

capacity of the chip board and felt mill factory is 60 tons. Two spur tracks lead into the plant from either side, each with a capacity of 22 cars.

$100,000 Administration Building

A new and distinct style of architecture for industrial buildings was set by the Pioneer Paper Company in the construction of its new $100,000 administration building, recently completed. The Spanish Rennaisance type of architecture, with its soft exterior lines, has been carried out much on the same style of many Southern California homes. The building is 90x150 feet, with an interior oak finish. Sales and display rooms occupy the front portion of the building, immediately back of which is the general offices, with private quarters for the president, vice president, general manager and other executive officers.

The stucco exterior is set off and embellished with ornamental stone panels and wrought door fixtures. The architects, Morgan, Walls & Clements, have carried out in minor detail the Spanish design of the Rennaisance period. The roofing is entirely of specially designed slate surfaced shingles, manufactured by the Pioneer Paper Company. The shingle is of asphalt-impregnated felt and is waterproof, dustproof and fireproof; it is multi-colored, shadow lined and carries out the artistic effect of the structure itself.

New York Paper Men Visit President

The paper trade was represented in the New York Business Men's Republican Association's trip to see President Coolidge at Washington by Mr. Owen Shepard, treasurer of the International Paper Company, Adam K. Luke, treasurer of the West Virginia Pulp and Paper Company and William G. Luke of the West Virginia Pulp and Paper Company, Edward H. Watson of H. G. Craig & Co., and the New York Distributors by Paul E. Vernon of Paul E. Vernon & Co. F. D. Waterman of L. E. Waterman Company represented the stationers.

The forty odd industries on arrival in Washington in their special train were introduced to the President and were addressed by him, his remarks featuring the value of business to the American communities and the necessity of efficiency in business. A point that won applause was:

"Our economic system is fundamentally sound. It has provided our people with the highest standard of comfort, the greatest security of life, that is enjoyed by any nation. It has assured to us the greatest range of opportunities that men have ever enjoyed. It does, indeed, contain some abuses. But these abuses are emphasized out of all due proportion by those who indulge the habit of expressing themselves in exaggerations."

Later the delegation was photographed with President and Mrs. Coolidge.

At lunch they were addressed by Mr. Hoover who stated that what American business needed was stability, and President Calvin Coolidge would give that stability. Therefore business should continue him in the position he now occupies.

The party left at the end of the speech by special train for New York.

The object of this trip was to show to the President and the country that the great industries are behind the policy of economy, efficiency and the reduction in taxes which the Executive has inaugurated, and which they, as merchants, want to have continued.

Midlakes Paper Co. Installs New Machinery

The Midlakes Paper Company has recently installed at its plant at St. Joseph, Mich., machinery for the manufacture of Waterproofed Sheathing papers and paper specialties by the K-B process, the patents for which are owned by the Flintkote Company, Boston, Mass.

This process makes use of an emulsion of asphalt and clay, which is incorporated in the sheet. This is made possible by reason of the fact that the emulsion flows readily in cold water, thereby permitting combination of the paper stock in the wet end of the machine. The heat of the dryers amalgamates the particles of asphalt, resulting in a water proof center.

The process has wide applications and constitutes, it is said, a valuable addition to the paper making art.

VIEW SHOWING OUTSIDE OF CONSTANT TEMPERATURE AND HUMIDITY TESTING ROOM

TESTING SECTION GOVERNMENT PRINTING OFFICE

The Testing Section of the Government Printing Office, which was established by the Public Printer, Hon. George H. Carter, in February 1922, was organized for the purpose of making technical tests on all paper, envelopes, materials and supplies offered or procured for the use of the Government Printing Office, and to conduct such investigational work as might be deemed necessary from time to time to promote the best interests of the government, and to prepare or assist in the preparation of standard specifications for the purchase of all materials used by this office.

Equipped with Most Modern Devices

This section has been equipped with the most modern devices for the testing of paper, textiles, oils, ink-making materials, metals and other miscellaneous supplies which are used by the printing plant.

The inspection and testing of the approximately 50,000,000 pounds of paper, and paper products, including every kind from news print to high grade bonds and ledgers, envelopes, tags, fiber containers, binders boards and the like, which are purchased annually by the Government Printing Office upon definite specifications for quality, is one of the most important duties of the Testing Section.

During the fiscal year, 1923, approximately 5000 miscellaneous samples were tested in the routine work of the laboratory. There were 3731 samples of paper and paper products tested. The other materials tested, which amounted to approximately 1200 samples, included textiles of all kinds, especially book binding cloths and cordage, book binding leathers, gasoline and oils, ink-making materials, metals, including babbitt and type metal, as well as miscellaneous materials such as waxes, soaps, glues and various chemicals.

Development of Standard Specifications

One of the primary duties of the Testing Section is the development of standard specifications for the quality of all materials used in the printing industry and the carrying out of investigational work to promote the best interests of the office. Standard specifications have been prepared for flax book twines, various types of book binding cloths, such as buckrams, imitation leather and vellums, for the various materials used in the manufacture of ink, ruling dyes and inks, and the other materials used by the office. The investigational work has covered the use of solvents for cleaning type and plates; the development of various formulae for special inks such as copying ink, stencil ink, metallic inks and safety ink; the methods of handling glue and the development of formulae for casemaking and flexible glues, in fact, investigational work is being extended to all materials used in the various branches of the office.

It is also planned to study the difficulties experienced with paper in printing plants, such as static electricity, curl effect of ink on paper and the various types of paper sizing and their relation to printing inks.

In the Interest of Fairness

In order that the routine inspection work should be conducted with fairness to both the government and contractor definite methods are employed for sampling, inspecting and testing. As stated in a recent article by the Chief of Tests, all physical tests on paper for weight, thickness, bursting strength, folding endurance, tensile strength, water resistance, absorption, and the like, are made under the uniform testing conditions of 70-75°F. temperature and 50 per cent relative humidity. A careful study and investigation has been made in establishing this testing condition in order to secure by test results which would be in harmony with actual service. Full consideration was given to the indoor conditions prevalent in press rooms, storage rooms, libraries, offices, and homes.

The Testing Section has endeavored to handle all technical work in a strictly commercial manner. The construction and operation of the constant temperature and humidity room of the Testing Section would undoubtedly be of interest to all concerned with the testing of paper, and many requests have been made for this information. Most humidity rooms which have been constructed for testing purposes have been constructed without automatic control and with practically no attempt at temperature control. The testing rooms of the Bureau of Standards and the Bureau of Chemistry have been constructed at figures which would be too costly for a commercial plant or paper mill.

Physical Testing Room

The physical testing room of the Government Printing Office was designed by the Chief of Tests and constructed by the Buildings

Division of the office. This room operates automatically day and night, maintaining uniform conditions of 70-75°F. and 50 per cent relative humidity throughout the year. The room has no outdoor exposure, being constructed within the building, and is 12 x 20 feet and 14 feet high; one end and one side is equipped with two-thirds glass, while the other end and side have double partitions with approximately 3-inch air space between them. All partitions are tongue-and-groove lumber, except the outside walls of the end and side having the double partitions, which are constructed of composboard with all joints stripped. There is a vestibule to the entrance in order to minimize the effects on the conditions of the room by the opening and closing of the door.

The conditions are controlled by a hydrostat, which automatically, through the medium of air pressure and diaphragm valves, operates water spray nozzles or circulates ice water in the cooling coils. Neither brine nor a separate ice plant is used, the regular chilled drinking water of the plant being utilized. The atomizing waterspray heads supply the necessary moisture for the room, while the ice water coil is used for dehumidifying or cooling. This coil is so constructed that in winter a section of it can be used for steam for heating and dehumidifying purposes. The blower fan supplying air to the room is so arranged that the air can be taken from any one of three sources—out of doors, inside of the adjoining room or recirculated from the testing room itself, the air being passed through a specially constructed insulated box containing the waterspray nozzles and coil before being distributed in the room.

The accompanying photographs and sketches show the construction and operation of the testing room. No attempt has been made to give dimensions of coils or capacity of water atomizers, as these details would vary with different size rooms and other conditions.

The Government Printing Office testing room has been in operation with entire satisfaction for about two and a half years.

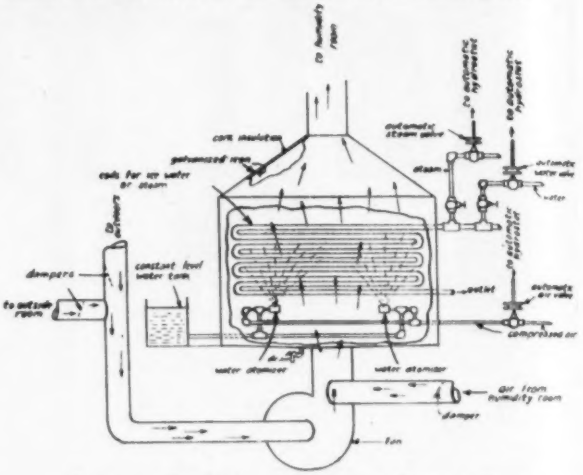
The total cost of the construction of this testing room, and the equipment for automatically maintaining uniform atmospheric testing conditions was between $1200 and $1500.

Interior of Physical Testing Room

Red Cross Roll Call in Paper Trade

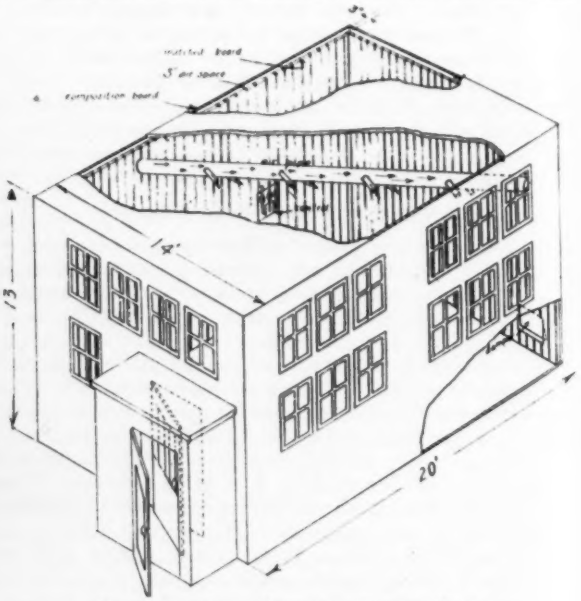
Volunteer Roll Call groups headed by representative leaders in the paper trade have enlisted to secure the maximum response in the paper industry in New York City to the Annual Red Cross Roll Call, opening November 11, Armistice Day, for funds to maintain the organization's relief work and public health program.

A. C. Hastings, of H. C. Craig & Co. will serve as chairman of Paper Manufacturers group, and T. Casselman, of T. and E. Casselman, Inc., will serve as chairman of Paper Boxes group.



Showing Operation of Physical Testing Room

These groups are among the first 75 groups formed in accordance with the campaign plan of committee organization of the city into various industrial, banking, mercantile and professional groups which will carry the Roll Call appeal into every branch of industry. It is anticipated that by the opening of the Roll Call more than



Construction of Physical Testing Room

175 such groups will be functioning throughout the city, representing a total of some 1,400 volunteer chairmen and committeemen.

Plans for comprehensive activity throughout these groups are already in operation under the individual chairman, each having set as his goal a 100 per cent enrollment with a Red Cross button on every person in the paper trade.

Aid for the ex-service man and his dependants constitutes the major part of the Red Cross program.

MASON-PERKINS PAPER MILLS GO OUT OF BUSINESS

Property of Bankrupt Concern Is Sold to Newfound Lake Power Co. Which Will Utilize It for Electrical Power Purposes—Ground Wood Pulp Was Manufactured as Early as 1878, Shortly After the Process Was Introduced in This Country—Property Includes What Was Formerly Train-Smith Mill

With the purchase of the Mason-Perkins Paper Company of Bristol, N. H., by the Newfound Lake Power Company, a New Hampshire corporation, there passes out of the paper arena a plant which for many years was an important factor in the manufacture of paper and wood pulp.

The new owners, who are a subsidiary to the New Hampshire-Vermont Power Company plans to develop electric power which will be connected with the Sunapee Lake power, which is carried to New London, Newport, Warner and other towns as far as Bennington, conveying electrical current to these points. It is proposed to develop hydro electric power on Newfound river to sell to near and distant points.

What the Sale Includes

The sale includes the two paper mills, one pulp mill, what was formerly a pulp mill but now an electric power station, the toll house, the Kenney shop and store houses and land bordering on the shores of Newfound river, the freight station, a dwelling, an old grist mill privilege, land from the mills to the turnpike, including another dwelling, a large tract of land with two power privileges, a dwelling known as the gate house, all rights of flowage around the lake and many acres of wood and timber land.

The Mason-Perkins paper mill, the brick mill, on Lake street, was erected in 1872, one year after the organization of Mason, Perkins & Co. The company consisted of David Mason and Benjamin F. Perkins of Bristol, Nathan H. Weeks of Plymouth, and James Flanders of New Hampton. The manufacture of paper there commenced the January following. Mr. Flanders withdrew from the company a year or two later, and on July 7, 1886, the company was incorporated under the name of the Mason-Perkins Paper Company.

Plant Many Times Improved

Improvements and additions were made from time to time; but the most extensive was in 1891, when the mill was shut down for five months and large additions to the building and machinery were made.

The class of goods made there has been mostly colored poster paper and white news.

Hon. B. F. Perkins was manager and treasurer of this company till 1897, when he retired, and was succeeded by Frank P. Fields, who continued in this position till his death, June 3, 1908, and since that time Frank N. Gilman had filled the position.

The site of the Train-Smith company's mill was first utilized for manufacturing purposes in 1866, when Charles N. Drake and Col. Samuel H. Rollins erected a saw-mill. They operated this mill till the spring of 1867, when Benjamin F. Perkins, who came to Bristol from New Hampton, and George Z. Collins of Boston purchased it and converted it into a mill for the manufacture of straw board. The name of the new firm was B. F. Perkins & Co. In the fall of that year, B. M. Ames bought a third interest, and a year later, Mr. Collins sold his interest to his partners, who continued the business.

Mason, Perkins & Co. Formed

In 1871, when the firm of Mason, Perkins & Co. was formed, Mr. Perkins sold his interest in this business to Robert M. Mason, and Ames & Mason continued the business for three or four years, when Mr. Ames sold his interest to George M. Wooster. The firm then became Mason & Wooster, and the new firm continued business till it was sold to the New Hampshire Pulp and Paper Company in 1882. In 1885, Train, Smith & Co. succeeded to this property by foreclosure of mortgage, and continued the manufacture of paper.

In the summer of 1886, Train, Smith & Co. built what became the main building of this mill. In 1900, the company was incorporated under the name of the Train-Smith Company.

Purchased by Mason, Perkins Paper Co.

On the death of Mr. Train and Mr. Smith, or about 1905, the Mason-Perkins Paper Company purchased the property, and commenced the manufacture of tissue paper. This deal also included the pulp mill on Central street.

The site of the present brick pulp mill on Central street enjoys the distinction of being the first mill privilege utilized for manufacturing purposes in the old town of New Chester, now Bristol. At a meeting of the proprietors of New Chester, May 19, 1767, it was voted to give Maj, John Tolford Lot No. 61, on Newfound river, and Lot No. 71 on Smith's river, on condition that he should have a grist-mill and saw mill in operation on Newfound river by the first day of November, 1767, and a grist-mill and saw-mill on Smith's river within six years from that date. Lot 61 extended from near the center of Central Square on the north to Prospect street on the south, and from the Pemigewasset river on the east, to the Alexandria line on the west, and contained about 108 acres, including all the mill privileges on the falls in Bristol village. If Mr. Tolford did not have a mill in operation on the date set, he must have had very soon after, for on March 27, 1769, the proprietors voted that "Maj. John Tolford should be obliged to tend his grist-mill in New Chester for the proprietors every first Monday in each month for the year and on no other days." At this time, there were only about eight families in the entire territory of New Chester and, therefore, no occasion for the mill to be in operation more than the time specified. The dam to turn the water to this mill was across the north channel of the stream near the upper bridge on Water street. The grist-mill was near the dam and contained two run of stone. The saw-mill was next to the grist-mill on the east.

Moses Lewis Starts Tannery

The history of Bristol tells of numerous transactions connected with this property, till 1808, when Moses Lewis established a tannery on the grist-mill site. Several other changes in ownership occurred up to May 3, 1820, when Nathaniel S. Berry purchased the tannery property for $800. The land embraced Spring street and the house where now stands the residence of C. N. Merrill. At that time there was only a path from Central Square to the tannery, and Spring street was a lane which terminated at the house referred to, which became the residence of Mr. Berry.

Seven years later, or about 1827, Mr. Berry erected a tannery building, 40 by 80 feet, to tan with hot liquors, on the New York plan, as it was then called; and Mr. Berry claimed that his was the first tannery in New England to use this process. By the old method of tanning with cold liquors it required a year to tan hides, while the new process required only one or two months. In building this tannery, 35 gallons of rum and five or six barrels of cider were used, according to the custom of the times. In November following, when putting in the first pack of hides, the proprietor proposed that all agree that no more intoxicating liquors be used.

To this all assented, and Mr. Berry claimed that this was the first temperance society in the state.

Sold Out to Warren White

Mr. Berry continued the business till September 2, 1836, when he sold to Warren White, and for 38 years, until his death in 1874, Mr. White operated this tannery to its full capacity. In 1845, he rebuilt and enlarged. In 1853, fire destroyed the buildings, but he immediately rebuilt. After his death, his son, Marshall W. White, continued the business for the heirs till May 25, 1881, when the property was sold to Dr. Moore Russell Fletcher. Two months later Dr. Fletcher conveyed it to the New Hampshire Chemical Pulp company, a company organized under the laws of New Jersey, for the manufacture of chemical pulp. In August, 1882, after a few months of active operation, there came into being a new company composed practically of the same men as the old, and called the New Hampshire Pulp and Paper company. The same month, the company purchased the paper mill of Mason & Wooster on Lake street, and commenced the manufacture of manila paper from the pulp made at the tannery site. The business did not, however, prove a success, and on February 11, 1885, Train, Smith & Co. of Boston took possession of these two mills under foreclosure as before stated. In 1888, the company leased of the Bristol Water Power company all the water in the stream to which they were not already entitled. On the morning of June 27, 1901, the pulp mill was destroyed by fire, and October 28, following, the present brick building was completed.

Erect Electric Generating Plant

The mill on Water street, now used as an electric generating plant, was erected in 1836, by the Bristol Manufacturing company, composed of a group of men little known here, for a cotton and woolen mill. The factory was three stories high, besides a basement and double attic, after the manner of factories in those days. The roof was surmounted with a belfrey, in which hung the bell which now hangs in the Engine house. Nearly in front, and about where the concrete crossing now is, was erected a two-story boarding house. This building was torn down to make way for the road to the station, when the railroad was built. The only road then to this mill was on the south bank of the river, passing in front of what is now the Calley & Currier crutch factory. The business was continued by different ones for about five years, then remained idle for many years. Beginning about 1865, the Merrimack Hosiery Company utilized the mill for the manufacture of hosiery for a few years, after which there was another series of years when it remained idle.

Start Wood Pulp Manufacture

The manufacture of wood pulp there was commenced in 1878, by David Mason and R. D. Mossman. William A. Berry succeeded Mr. Mossman in February, 1881, and the Mason-Perkins Paper Company succeeded Mason & Berry in February, 1891. August 13, 1892, the two upper stories on the building were consumed by fire, after which the present roof was constructed over the lower story. The manufacture of wood pulp was continued there until about the time of the sale to the Mason-Perkins Paper Corporation, since which time it has been used as an electric generating plant.

The former Bristol Water Power company, which is involved in this sale, succeeded the Winnepesaukee Lake Cotton and Woolen Manufacturing Company which originated in 1848, when a party of capitalists from Lowell secured a charter for the purpose of controlling the water of the lakes that were tributary to the Merrimack river, and commenced improvements at the outlet of the lake. Previous to this the waters of the lake had flowed unobstructed by any dam at the outlet. This company, commonly known as the Lowell company, but with headquarters at Lakeport, purchased the right of flowage along the river and around the shores of Newfound lake, and erected the large stone dam at the outlet. In July, 1884, the company sold to the Bristol Water Power company, all its real estate and rights here. The latter company was composed of David Mason, Benjamin F. Perkins, Josiah Minot and perhaps others, and eventually the same stockholders of this company were much the same as those of the Mason-Perkins Paper company, thus closely associating the two companies.

The Beginning of the End

The entire real estate referred to above, including the woodlands, was sold February 5, 1919, to the Mason-Perkins Paper Corporation. The new corporation was incorporated under the laws of Massachusetts, the three directors being Eugene Carpenter, the president, Charles H. Carpenter, the treasurer of Newton, Mass., and Nathan B. Day, secretary, of Boston.

The new corporation continued the business with no radical changes, save for the discontinuance of the Train-Smith mill. They also erected a substantial addition to the south side of the Mason-Perkins brick paper mill, and extended the rails of the B. & M. track to their power house near the depot.

Hard times struck this company, and several of the storehouses and the Train-Smith mill were left to decay. June 4, 1923, at a mortgagee's sale, the Mason-Perkins Paper Company purchased the entire property, including that of the Bristol Water Power Company. Now the Newfound Lake Company becomes prominent in the commercial life of Bristol.

New Plant of Little Falls Pulp Mill

The past year has witnessed the installation of the Little Falls Pulp Mill of Little Falls, Minn. in a new plant which provides it with a more modern environment and affords it a better opportunity to progress.

The Little Falls Pulp Mill, which is a subsidiary concern of the Itasca Paper Company, has been in operation for several years but on May 1, 1924, it took possession of its new plant. This was the old planing mill of the Pine Tree Lumber Company which was purchased the first of the year. It was remodelled into a modern pulp mill in accordance with plans prepared by the Jacobson Engineering Company of Minneapolis.

The machinery from the old pulp mill was installed in the new plant and such new machinery was added as was necessary to complete a thoroughly modern equipment.

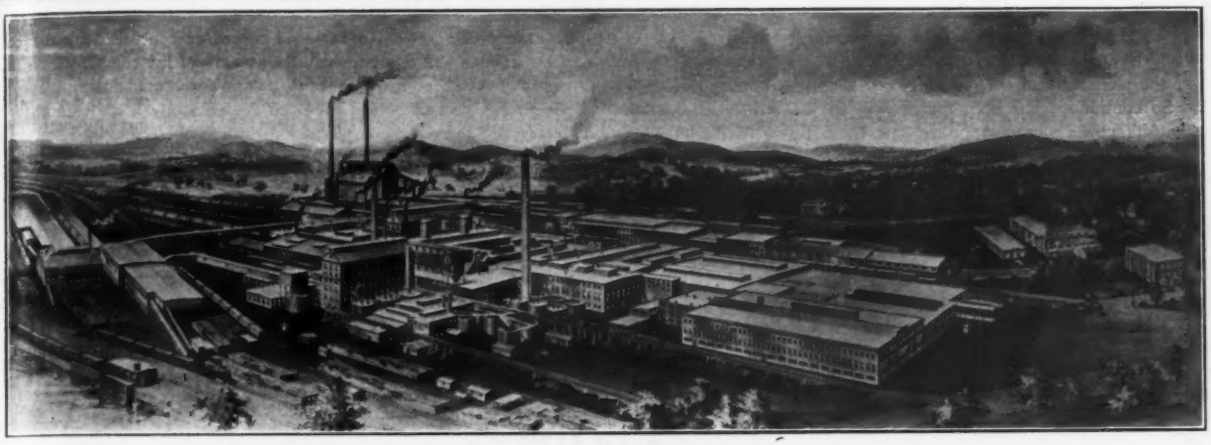
Two new 650 h.p. electric synchronous motors were installed and connected to four pocket Union Iron Works grinders, replacing the 1,000 h.p. motor. Other new equipment included pumps, screens and wet mahines so that the capacity of the mill is now 28 tons whereas it was formerly but 18.

In making the plans for the present mill a due regard for the future was shown. Provisions were made for increasing the capacity from 50 to 100 per cent by adding additional units at such times as may seem advisable.

A feature of the present plan is that practically all of the machinery is driven by direct connected motors, belt drives having been almost entirely eliminated. Arrangements have been made for obtaining additional power if the market is right and the company hopes to turn out from 3,000 to 6,000 tons of pulp during the season.

Cleanliness and efficiency will be maintained at the new mill. The interior of the mill has been freshly painted. The building is large and well lighted. Concrete floors, platforms for the screens, stock pits and pump pits have been constructed to conform with the most modern methods of pulp manufacture.

The output of the Little Falls plant is either used by the company's paper mill at Grand Rapids, Minn. or sold in the market.



PLANT OF THE CHAMPION FIBRE CO.

DEVELOPMENT OF THE CHAMPION FIBRE CO.

Pioneering Enterprise Established in Mountains of North Carolina Only Comparatively Few Years Ago Becomes So Rapidly Successful That New Addition Is Built to Book Mill This Year Bringing Production Up to 100 Tons Daily—Wolf Bleaching Process Installed

There is a large element of risk in all new enterprises which suggests the speculative influence in industry. To embark upon an enterprise, the object of which is the production of a staple article of large consumption, and where that production already appears to exceed the demand, is more than ordinarily hazardous.

Twenty years ago this was the situation in the wood pulp industry and perhaps it required more than ordinary foresight at that time to visualize the future needs of the American pulp and paper industry.

Peter G. Thomson Turns Southward

When Peter G. Thomson of Hamilton, Ohio, a pioneer in the manufacture of coated paper, sought to protect his paper mills by providing for an uninterrupted supply of wood pulp, he turned Southwards and away from the direction in which the pulp industry was showing its greatest development, which was West and North.

It requires no little courage at any time to leave the beaten path and when Mr. Thomson, after a careful survey of the South's potential pulp supply, decided to locate his pulp plant at Canton, North Carolina, and there established the Champion Fibre Company, he not only had to contend with the usual hazards of a new enterprise, but also faced the difficulties of the pioneer, for at that time Western North Carolina was in reality "backwoods" and far removed from the line of industrial progress.

Canton, North Carolina, is situated in the heart of the Southern Appalachians and for hundreds of square miles the mountains are covered with all varieties of trees ranging according to altitude from chestnut and hardwoods to hemlock and spruce. This area attracted many lumbermen from the North, but it often proved their financial graveyard, because of their unfamiliarity with mountain logging.

Overcame Many Difficulties Building Pulp Plant

In the face of many difficulties the pulp plant was finally built, the territory organized for the supply of pulpwood, and the production of both soda and sulphite pulp commenced. Hemlock and spruce woods supply the sulphite plant and the bulk of the wood supplied to the soda mill is chestnut wood, the utilization of which necessitates a prior treatment for the extraction of the tannic acid which it contains, and this involved the Champion Fibre Company in a new enterprise not connected with the pulp and paper industry and required the construction of one of the largest tannin extract plants in the world and the company's product of this material is known wherever leather is made throughout the world.

Champion Pulp Early Sought

From the first the production of sulphite and soda pulp was in excess of the needs of the parent plant at Hamilton, Ohio, and the company's product very soon established itself on the market and became popular with American paper makers. Champion soda pulp in particular has an enviable reputation for high quality.

The production of any article possessing merit creates demand, which in turn involves expansion and this is true of the products of the Champion Fibre Company whose production of sulphite and soda pulp gradually increased and a new sulphate mill was added to the company's plant.

First Book Mill in South

In keeping with the spirit of enterprise, which has governed the Champion Fibre Company's activities from its beginning and looking for opportunities for greater service to the Southern communities, some four years ago the company erected the first book mill to be operated in the South and having a capacity of fifty tons per day. Already the demand for the company's product which includes bond, book, kraft and post card, has outgrown the paper mill's capacity and this year a new addition has been made which will bring the daily production of paper up to 100 tons.

New Paper Machine

The new 168-inch paper machine is the same size as the original machine except it has greater speed, turning out 800 feet of paper per minute.

This increase in the company's capacity for paper production will absorb the entire production of the company's sulphite pulp which is over 100 tons daily.

An increase in the production of soda pulp will enable the company to maintain its supply to outside consumers. The production of soda pulp is now 150 tons daily.

New Pulp Bleaching System

A new system for pulp bleaching is being installed—The Wolf Bleaching Process—and the company's own electrolytic plant for the

production of chlorine and caustic soda has been enlarged so as to furnish 40 tons chlorine per day which is insufficient for the needs of the plant and an outside source of supply is required.

So continuous has been the growth of the company's operations that its power consumption is now three times what the original power house was designed to furnish. The present power plant has a capacity of 7,000 kilowatts and in addition a power supply is obtained from outside sources.

The company's production of pulp board has recently been increased to 40 tons per day and the demand for this product is well maintained.

Wood for Many Years to Come

Back of the Champion Fibre Company's pulp production are thousands of acres of timber land owned or controlled by the company which stand ready to furnish the bulk of the company's requirements of wood for many years to come. The economical operation of the timber properties has involved the company in still another industry and the company operates one of the best equipped saw mills in the country for the production of lumber—principally hardwoods, and has its own dry kilns and planing mill.

The progress made by the Champion Fibre Company has justified the faith and rewarded the courage of its founder who has been ever mindful of the wellbeing of those who have labored to achieve the success of the enterprise, and within its sphere of influence the Company has a reputation for square dealing which is its accepted policy and dominates all its relations with its employees.

MENASHA PRINTING & CARTON CO'S NEW BLEACHING PLANT

By Frank A. Beisel, Gen. Supt. Menasha Printing & Carton Co., Menasha, Wis.

This new installation is a thick bleaching unit operating under the Wolf Process patent. The type is the Fletcher vertical unit with central worm and plow arm. Fig. 1 gives a comprehensive idea of the machine.

Unbleached pulp 35 per cent and 75 per cent dry is shredded, then elevated in a bucket elevator to a height of 25 feet. The pulp is discharged into a worm conveyor which carries it into the bleacher tank. The probable consistency of this pulp is in excess of 35 per cent dry at the point where it is discharged by the elevator into the worm. At this point bleach liquor is added so that by the time the pulp reaches the bleacher tank, it is approximately 19 per cent air dry, at which consistency it remains throughout the bleaching period, being finally discharged into the dump tank beneath at 19 per cent.

The operation of the bleacher is as follows:

As the pulp enters the bleacher tank from the conveyor above it is engaged by the spiral plow at the bottom of the tank and delivered into the elevating worm in the center of tank, thus raising the pulp to the top of tank where it falls over the center tube and gradually finds its way to the bottom of the tank to repeat its trip. This circuit takes about seven minutes. The total bleaching time is variable, depending upon the pulp, but an average of from 1 to 1½ hours is the usual time required in the tank.

Four tons are shredded and loaded in the bleacher constituting one charge and six to eight turnovers per day of 24 hours is usual performance.

No steam is used to assist the bleaching, and the temperature of the pulp in the bleacher is from 75° to 80° Fahr., only the heat of chemical combination being relied upon.

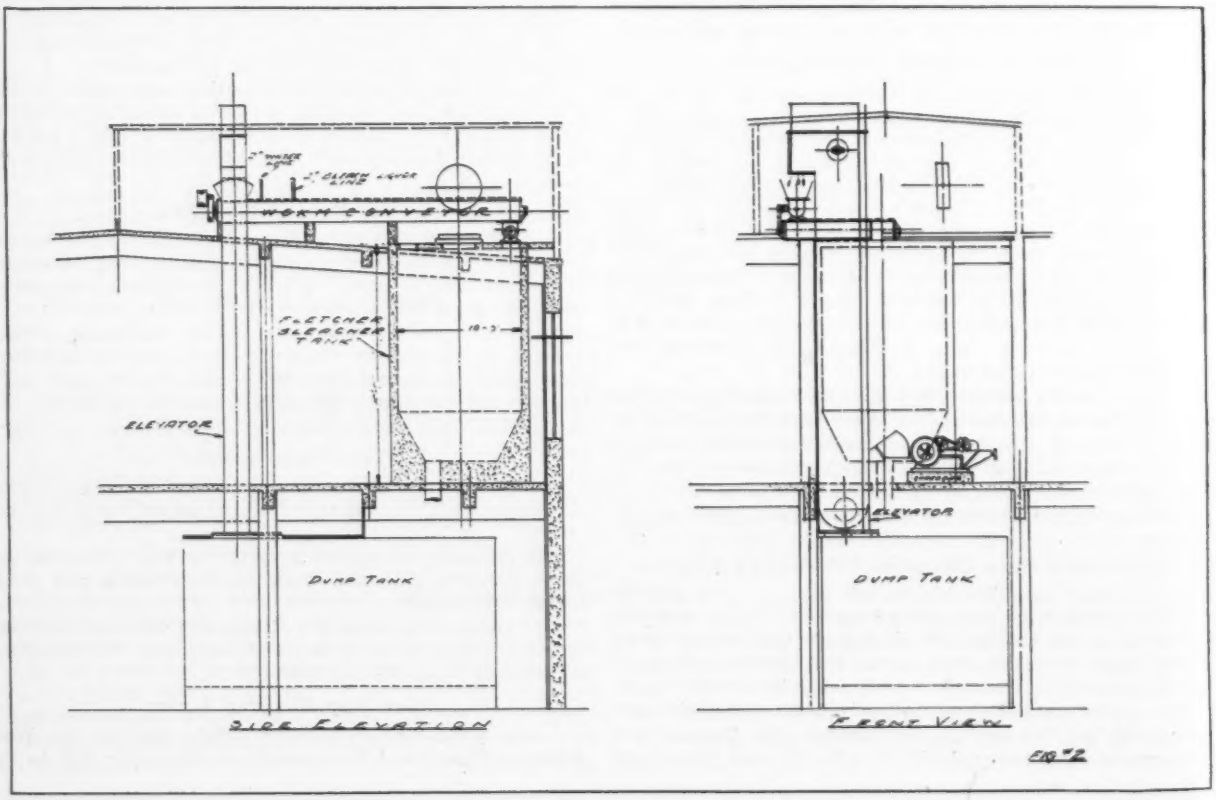


Fig. 2

MATHIESON System

Accuracy First

ACCURACY is the keynote in the design and operation of the Mathieson Multi-Unit Tank Car. Absolute accuracy in loading is the basic feature that creates all the other advantages of this car—maximum safety, economy and convenience in the transportation and use of Liquid Chlorine.

Upon the return of a Multi-Unit Car to our works, each of the fifteen one-ton containers is removed from the car and thoroughly cleaned, dried and inspected. The valves and fusible safety plugs are removed from each container and reset in our machine shop.

Each ton container is refilled while being individually weighed on a Toledo scale. To make doubly sure of the accuracy of the contents and of the tightness of the valves, all containers are allowed to stand for 24 hours after filling, until the Liquid Chlorine has adjusted itself to atmospheric temperature. A final inspection is then made and the weights rechecked before the containers are returned to the Multi-Unit Car.

Users of the Mathieson Multi-Unit Tank Car are assured of an even fifteen tons in each carload, each container an accurate measure of Liquid Chlorine, with none of the hazard due to possible overloading and with no shortages or uncertainty as to the quantity of material received.

The MATHIESON ALKALI WORKS Inc.
25 WEST 43rd STREET NEW YORK CITY
PHILADELPHIA PROVIDENCE
CHICAGO CHARLOTTE

EAGLE THISTLE PRODUCTS

Deal Direct with the Manufacturer

Bicarbonate of Soda
Liquid Chlorine-Caustic Soda
Sesquicarbonate of Soda
Bleaching Powder-Soda Ash

A 16-inch quick opening dump valve is capable of dropping the four ton charge in 10 minutes.

A 40 hp. motor drives the bleacher, although 32 hp. is the maximum load on the motor, thereby showing less than 1½ hp. per ton per day for the power.

Considering only the saving in bleach consumption and steam, $50 per day is being saved by this thick system of bleaching. There is an additional saving due to low power required for driving and the smaller shrinkages which low temperature bleaching is responsible for.

Fig. 2 gives a general outline of the complete installation which was erected in practically the same floor space as formerly occupied by one bleaching beater.

Fig. 3 is a photograph of the interior of the bleaching plant.

Many Improvements at St. Croix Plant

The past year has been a busy one in the way of plant improvements for the St. Croix Paper Company of Woodland, Me.

Early in the year the company changed the four water-wheels which have been driving its pulp grinders to more modern and efficient wheels, in order that the best results might be obtained from the water available for the grinding of the pulp.

A new water-wheel and generator were installed at the power plant, the capacity being 4,500 horsepower. Previous to this installation there had been in the power plant two water-wheels direct connected to generators of 4,400 horsepower each. These two wheels

FIG. 3

A Typical Fletcher Type Installation Where the Stock is Shredded and Elevated into the Bleacher Tank by a Bucket Elevator.

are now being replaced with more modern and efficient wheels. There has also been installed at the power plant a steel log sluice, which replaced an out-of-date wooden constructed log sluice of flat-bottom type which was wasting a great deal of water. The new log sluice is of "V" shape and requires a minimum amount of water to do the same work that the old sluice was doing.

In the ground wood mill there was installed an additional 1,800 horsepower motor, driving three pulp grinders. This gives the company a total of 16 water-wheel-driven grinders and nine electric-driven grinders. In addition to this, the company has installed the necessary screens and deckers to take care of the increased production.

The use of beaters has been discontinued and the Trimbey Mixing System has been put in. This, of course, required the addition of several pumps and sulphite deckers to make this unit complete.

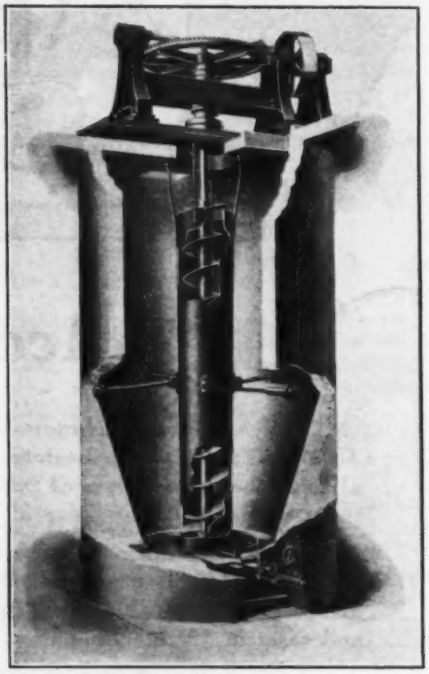


FIG. 1

Showing Interior of Fletcher Unit

There is now being built a steel ground wood slush tank to increase the capacity of the decker tanks, which means that in the future the company will run its wet machines on ground wood only when it is making a surplus of ground wood which is to be stored in the yard.

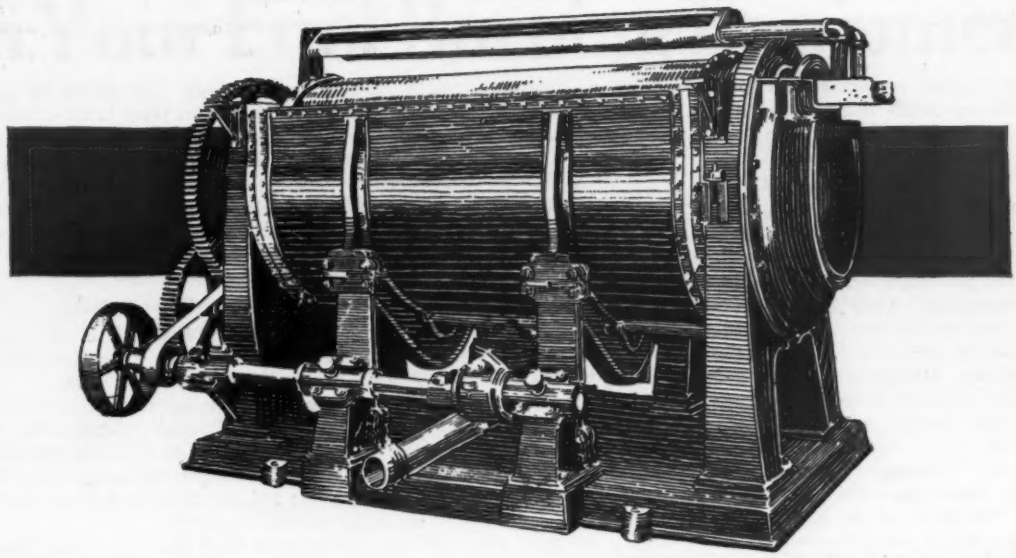
The installation of the third generator at the plant gives excess power during high water periods and on Sundays, which power it is proposed to put into steam, an electric boiler having been purchased for this purpose which will be installed at an early date.

The company has also revamped its boiler plant by the installation of two 1,000-horsepower boilers of the water tube type which will give a greater efficiency.

Paper Mills Install Taylor Stokers

The purchase of nine Taylor underfeed stokers by three of the leading paper manufacturers of the country is announced by the American Engineering Company, of Philadelphia, manufacturers of the stokers.

The companies installing these new stokers are: The Mead Fibre Company, of Kingsport, Tenn., which has purchased four, 3-retort, 17-tuyere, type H Taylor stokers to replace another type of stoker now installed at its Kingsport plant; the Escanaba Paper Company, of Escanaba, Mich., which has purchased two, 5-retort, 21-tuyere, type H Taylor stokers for use in its plant at Escanaba, where they will replace underfeed stokers of another type now installed in the plant; and the Champion Coated Paper Company, of Hamilton, Ohio, which has purchased from the United States Shell Loading Plant at Edgewood, Md., three type BA-6 Taylor stokers to add to the battery of Taylor stokers now in use in its plant in Hamilton, Ohio.



15,000 Tons of Paper pass through Bird Screens Daily

THREE Bird Screens furnish 100 tons of perfectly screened newsprint stock to the widest paper machine in the United States. This was the first paper machine in the world to make 100 tons of paper in 24 hours.

BIRD SCREENS

BIRD MACHINE COMPANY
South Walpole - Massachusetts

7090

THE WHY AND WHEREFORE OF OUR COURSE IN PULP AND PAPER MAKING*

H. E. Weston, Assistant Prof. of Pulp and Paper Manufacture, the New York State College of Forestry at Syracuse University, Syracuse, N. Y.

It is not necessary to discuss the value of paper to our present world needs, but simply and briefly I would like to recall a few important items relating to the history of paper making so that we may more fully appreciate the "why" of it.

Early Writing Materials

Although paper is now a very common place commodity we must not fail to realize that this was not always true. Early civilization made use of stone, clay, metal, wood, wax tablets, ivory, leaves, bark, papyrus, parchment, etc. in place of paper before the beginning of our Christian era. About 105 A. D. a brilliant Chinaman conceived an idea and put that idea into practice by manufacturing, probably from the bark of the mulberry tree, a product suitable for writing purposes. This product, destined to become a very important and necessary article of commerce, was our first paper. The importance of this discovery can be comprehended and emphasized by quoting H. G. Wells. In his "Outline of History" he states when discussing the "Renascence of Western Civilization" that—"It is scarcely too much to say that paper made the revival of Europe possible." The history of the intervening years between the past and present is full of many interesting accounts of early struggles, but it suffices to say that from 792 A. D. until about 1850 cotton and linen rags were practically the only materials of importance used in the manufacture of paper.

The first wood pulp process was invented in 1840. The development of this process, together with the invention and development of the other three commonly known wood pulp processes, marked a great epoch in the history of paper manufacture. Gradually these processes have been perfected and wood is, at present, our most important raw material.

Enormous Consumption of Paper

In fact it can be said that "The world never had enough paper until it was made from wood." Likewise as long as the public can get a cheap and abundant supply of wood it is doubtful if a "saturation point" will ever be reached. At least it would be impossible to make any such prediction due to the great multiplicity of uses to which paper can be put and to new uses constantly being discovered. Today we have about 22,000 newspapers in the United States and Canada with about 2,000 of them being considered as the so-called English language dailies. There are printing presses in some instances turning out over 40,000 newspapers per hour. The record for news print consumption of one edition of the *New York Times* was made this year when a single Sunday edition consumed 877 tons of news print. Converting this paper back to raw material gives approximately 1,110-1,200 cords of wood. The average yield of Adirondack spruce is 7 to 10 cords per acre, so that at a low estimate over 100 acres of timberland would be required to furnish this quantity of wood. Another leading daily uses approximately 240 tons of news print per day. Figure the amount of timber required and the acreage cut over during a period of forty, fifty, or sixty years which is the approximate length of time determined for a rotation of a spruce crop to pulpwood size. Contrast the requirements of such a newspaper with the first newspaper in the Colonies, the *Boston News-Letter*, which appeared in April, 1704 on two pages of hand-made paper, each 9 inches by 12 inches.

Consumption of Pulpwood

The annual consumption of pulpwood in the United States has increased from approximately 2,000 cords in 1870 to over 6,000,000 cords in 1920. Without a doubt, over 100,000,000 cords of wood have gone into the manufacture of paper in the United States since wood pulp was first introduced in this country. The present paper industry, subsisting on a few standard paper-making woods like spruce, hemlock, balsam, etc. is largely concentrated in the coniferous forest belts of New England, New York, or in the regions of the Great Lakes and the Northern Alleghanies. According to the latest available statistics, there are 170 paper mills and 97 pulp mills within the boundaries of New York State.

Backbone of Paper Industry

With such demands on our forests it is not unreasonable to assume that forests are the backbone of the paper industry. Without forests our present industry could not exist.

How long can our industry be maintained with our present timber supply and rate of cutting? From all indications new fields of raw material must soon be drawn upon or old fields redeveloped. If new fields are preferred it will mean the migration of the industry away from existing markets and the facing of technical problems in the use of unfamiliar species.

With these thoughts in mind the New York State College of Forestry has defined Forestry as not only the repeated raising of crops of timber in the shortest possible rotation on soils unsuited to agriculture but also the marketing and utilization of the forest crops. With such an interpretation it has been possible to develop our work in pulp and paper manufacture.

First Courses at Syracuse

The first instruction in pulp and paper manufacture at the College was given in 1918 in a course organized to afford regularly enrolled students a *general* understanding of the processes employed in the manufacture of a finished product so largely dependent upon the forest for its raw material. While students received this instruction were not especially fitted for positions in the paper making industry other than as regular trained Foresters, they often found themselves in permanent positions in pulp and paper mills. To some extent, these men proved to be liaison officers because it was partially due to the experience of these men that in the fall of 1920 the courses in pulp and paper making at the College were completely reorganized with the object of training interested students specifically for positions in the pulp and paper industry.

This reorganization has brought about a curriculum designed to give to the students, not only an understanding of the manufacturing processes with methods of technical control, but also an appreciation of purely cultural subjects. Specialization in pulp and paper technology is not even attempted during the first two years of the course, so that during this time the student may get a satisfactory foundation in mathematics, chemistry, physics, etc., for his future work. An arrangement with Syracuse University in which many of the fundamental courses are given by the University faculty permits the College to devote its own laboratories and efforts very largely to instruction in the specialized work of its various departments.

Pulp and Paper Laboratories

The pulp and paper laboratories, occupying about 5,000 square feet of floor space in the basement of the College building, consist of a general chemical laboratory, paper testing laboratory, color laboratory, research laboratory and an experimental and semi-commercial pulp and paper laboratory. Each laboratory is well equipped for the function it has to perform.

The general chemical laboratory is used for specialized courses in chemistry. The paper testing laboratory is equipped to test paper

*Presented at the meeting of the Northern New York Division of the American Pulp and Paper Mill Superintendents' Association, Watertown, N. Y., October 25, 1924.

How Much Tax are You Paying on Your Fuel Burning Equipment?

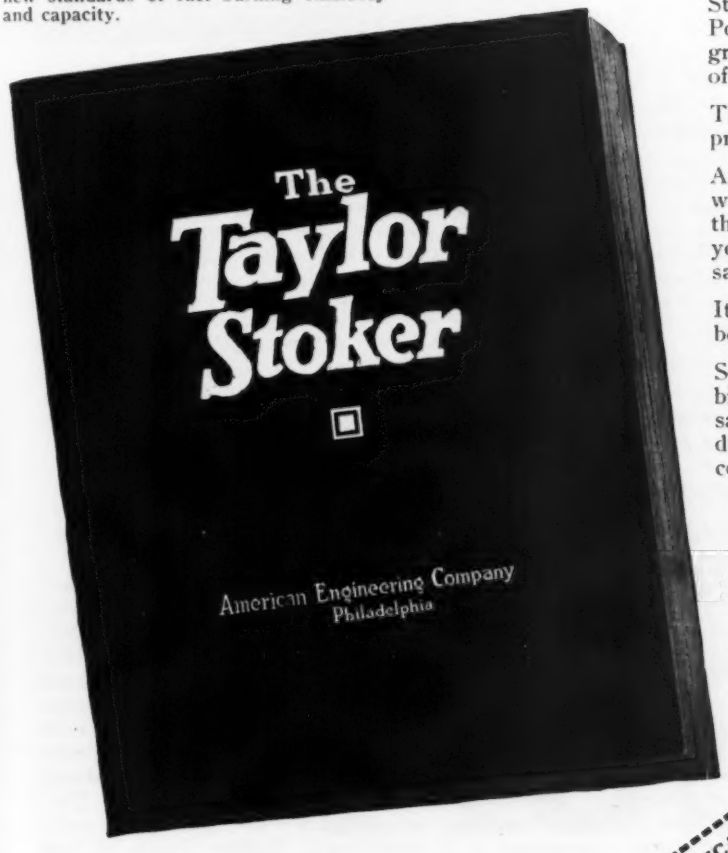
As Henry Ford so clearly expressed it:

> "If there is a machine that can effect a given saving in any operation you are paying a tax equal to the amount of that saving all the while you delay installing that machine."

To find out whether or not you're paying a tax on your fuel burning equipment compare the performances of your steam plant with these figures:

Overall Efficiency	**92.7%**
Average Boiler Rating	**461%**
Maximum Boiler Rating	**603%**
Heat loss due to unconsumed combustible in the refuse	**00.4%**

The new Taylor Catalog tells the whole story of the stoker that has established new standards of fuel burning efficiency and capacity.



These are not theoretical figures but actual results recently obtained at the Hell Gate Station of the United Electric Light and Power Co., by taking full advantage of the great fuel burning efficiency and capacity of the new Taylor Stoker.

This was done by a careful selection and proportioning of furnace elements.

And there is every reason to believe that with the Taylor Stoker as a foundation and the same careful attention to furnace design your fuel burning can be brought to the same high standards.

It costs you nothing to find out what can be done in your mill.

So you have nothing to lose and the possibility of discovering how you can save thousands of dollars annually in lowered production costs by simply sending in the coupon below.

Mail it Now!

AMERICAN ENGINEERING COMPANY ..... Date .....

Gentlemen: Without any obligation to me
☐ Send the New Taylor Stoker Catalog.
☐ Send the booklet on the Hell Gates Tests.
☐ Send an Engineering Representative.

Name .....
Company .....
Address .....

physically, chemically, and microscopically, while the color laboratory is equipped for the determining of dyestuff strengths, matching shades, or preparing colored specialties. The research laboratory, as its name indicates, is largely given over to a study of research problems.

It is possible in the experimental pulp and paper laboratory actually to make pulp and paper by any of the common chemical pulp processes from the cooking or pulping of the raw material to the finishing of the paper. The paper in this case is made by hand on hand molds similar to those used by our forefathers prior to the development of the modern paper machine. The semi-commercial pulp and paper laboratory, with much larger equipment than the experimental laboratory, presents to the students some of the problems encountered in actual mill operation.

Practical Experience Required

In addition to this training, six months practical experience in the industry is required of each student prior to the time of his graduation from college. The time of employment is optional with the student, but it is generally distributed between the last two summer vacation periods. The cordial attitude and co-operation of a number of New York State mills, as well as those of neighboring states, in assisting the College to place the students for these periods have been most gratifying and have spurred us on to greater efforts.

It is our hope that many of the mills, which have been unable to co-operate with us in our work in the past, may soon be in a position to aid in the training of technical students for positions of responsibility in an industry in which so many of us are interested. Likewise, we as an educational institution are anxious to be of service to the industry to the fullest extent of our ability and our time, and will be glad to co-operate in any way that may be within the scope of our work.

We are always pleased to explain our work and to show our facilities for doing it. A cordial invitation is extended to each of you to visit the College at any time you might be in the vicinity of Syracuse. You may then be able to see at first hand just what we are doing.

MacSimBar Expansion Program

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., October 27, 1924.—A half million dollar expansion program is anounced by the MacSimBar Paper Company, Otsego. It will include the erection and equipment of a new engine house, a new pumping station and the installation of a third board making machine and auxiliary equipment.

Plans for the engine house have been completed by Billingham and Cobb, engineers. They provide for a one story and basement structure, 50 by 66 feet in dimensions. It will be of concrete and steel and will be located immediately west of the recently installed boiler house. It will accommodate four 750 k.w. turbines, one of which has been ordered from the General Electric Company for immediate delivery.

This unit will occupy the ground now covered by the pump house and will result in the demolition of the latter and the erection of a new pump house and reservoir on the banks of Kalamazoo river. The pump house will be of concrete and steel, 22 by 26 feet in dimensions, capable of accommodating two 5,000 gallon pumps and a fire pump. In addition there will be a 150,000 gallon reservoir, 22 by 60 feet in dimensions and 12 feet deep. Billingham and Cobb are now working out plans for the new pumping unit.

The installation of another board machine is anounced through a source considered reliable. Figures are being secured on the machine and auxiliary equipment. The addition of the proposed machine will make the MacSimBar plant one of the half dozen largest board mills in the middle west. It will probably be at least 18 months before the new machine is in operation. In connection with the expansion program announced, it is understood the MacSimBar Paper Company will not have to do any additional financing.

Thomas M. Royal & Co. Move to New Plant

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, October 30, 1924.—Removal of the large bag manufacturing plant of the Thomas M. Royal & Co., from the manufacturing headquarters which it has occupied for many years in Bryn Mawr, Pa. was started several weeks ago when part of the equipment was transferred to the newly purchased, immense factory building at 7th and Grange streets recently acquired. This large manufactory was the former home of the Fox Motor Company, and is constructed on a plot covering a city square along the Reading Railway. It was purchased by the Royal Company in mid-July.

The four-story concrete structure covers the entire plot of ground and is of the latest type fire proof factory construction, having been built but a short time ago for the Fox Motor plant, and has an area of over 700,000 square feet. In it will be installed the complete

NEW PLANT OF THOMAS M. ROYAL & CO.

bag manufacturing plant of the Royal Company, one of the largest bag concerns in this State, producing all grades and types of bags including glassine, confectioners, grocers, flour and others, from the smallest to the largest sizes, under the Royal Brand.

In the new quarters there is provided a seven car siding of the Reading Railroad which will accommodate the capacity production of the daily output of 7 carloads of bags. The old plant, occupying a large acreage in Bryn Mawr, is to be disposed of by sale as soon as it is dismantled of the equipment now in course of removal to the larger home.

The Royal Company of which Thomas M. Royal, is president, Benjamin C. Betner, Vice President, and M. G. Gibson, treasurer and secretary, has been engaged in the manufacture of bags for more than 28 years. Its removal to the larger building, purchased at a price said to be over $285,000, will provide for expansion and will give the firm better shipping facilities, labor supply and more modern working surroundings. Under the expansion plants to be developed in the new plant is the installation of much additional latest type machinery for the production of printed paper bags, one of the largest departments of the Royal establishment.

With the removal of the business comes the announcement by Vice President Betner of the association of the Royal Company with E. S. and A. Robinson, Ltd. of Bristol, England, the largest and best known of British paper bag manufacturers and printers in the United Kingdom and producers of all kinds of bags. Through this association with the English concern the Royal Company becomes United States representative of the Robinson lines. Vice President Betner also announces that with the new, modern mchanical devices to be installed on a large scale the Royal Company will be equipped to offer anything in the way of printed and plain bags. The firm maintains a central city sales office at 614 Chestnut street under the management of H. Evert Kendig. President Thomas M. Royal is now in Europe where he will remain until late September or early October.

The Algonquin Paper Corporation, Gouverneur, N. Y. Built by The Austin Company

New Mill Projects Under Way By Austin

BUILDING activity in the paper industry includes the following projects now under way by The Austin Company.

A new plant unit for the Federal Paper Board Company at Bogota, New Jersey, was designed and is being built by The Austin Company.

Austin also has under construction a plant unit for the Continental Paper Company of Bogota, New Jersey.

Another project, that of new buildings for The Jaite Company at Jaite, Ohio, is the third contract that has been awarded Austin by The Jaite Company. This construction is now under way.

The Unit Responsibility Plan, the new distinctive feature of the Austin Method of building, relieves the owner of every detail in connection with the design, construction and equipment of the paper mill complete.

Austin will build from your design or will co-operate with your own engineers in developing plans from which to build. In either case the Austin contract guarantees the total cost of the project as completed, guarantees the date of delivery and guarantees the quality of labor and workmanship in the finished structures.

Get in touch with the nearest Austin Branch Organization by phone or wire, or mail the coupon.

Every man responsible for the successful operation of a paper mill should have a copy of the "A No. 1 Plan."

THE AUSTIN COMPANY, *Cleveland*

Engineers and Builders

New York Cleveland Pittsburgh Chicago Detroit Philadelphia Seattle Portland Birmingham St. Louis

The Austin Company of California: Los Angeles and San Francisco

The Austin Company of Texas: Dallas

THE AUSTIN COMPANY
Cleveland

You may send me a copy of your booklet "The A No. 1 Plan."

We are interested in a.....

.....building. Approximate size

..... x .....

Firm .....

Individual .....

Address .....

P. T. J. 10-30-24

AUSTIN

Finance Engineering Construction Equipment

THE BUYER, SELLER AND MAKER OF PAPER

By Ream Seal

The first buyer of paper in most instances, is the wholesale paper house, which buys through one of its representatives, and sells to the printer. Some of the larger printers and corporations buy paper direct from the mills.

The second buyer of the product, the small paper jobber and the printer, sell in turn to the buyer of printing.

The above applies especially to the finer grades of paper, and the problem of the seller and maker of paper is to produce a product that will meet the requirements of these buyers.

The ultimate consumer of paper, the man who writes his signature on the letterhead, is of course, the man to please. Give him a paper that he likes, one that he will insist on having his printer furnish every time, and you create a demand that must be met by the buyer of paper.

The printer must be given this paper, free from defects and uniform in all its qualities. If this is not done, the good impression and demand created in the mind of the last buyer of the paper, will not be effective.

The printer will advise his customer of the quality of paper he is buying and if it is not a paper that gives maximum printing results, and economy in printing, he is going to do his utmost to change his customer unto some other grade of stock.

Thus it appears that the most important individual, in the matter of creating demand, is the printer, and it is from him that the wholesaler of paper secures his ideas of paper values, for a paper that prints well and has the approval of the printer's customer, is bound to be successful in a competitive market.

Cooperation Between Maker and Seller

The paper jobber's several years of experience in meeting the requirements of the printers, enables him to become a first class judge of papers that can be successful, and his opinion is given full value by the paper manufacturer; in fact most favorably known brands, have been created by cooperation of the seller and makers of the papers.

The writer knows of one of the most successful bond papers of the present day, when it was a paper that all printers despised, and yet its present day qualities, from a paper maker's viewpoint, are not near as good as they were at the time the paper was not acceptable to the printers. It does not have the strength or snap, of the original sheet and it has less rag content, and is not as well sized. These lacking qualities have been replaced by a brighter color and better printing qualities. The paper lies flat, with no tendency to curl, and these are qualities the printer look for. It also shows ink in its maximum effect, without excessive consumption, and printers like it and would have nothing else if competition were not at all times present.

But the printer at times, finds that he has a good customer, who insists that the paper will have a certain shade of color, that it must test a certain strength factor, and have a definite bulk, be watermarked with a private name and have hardness and rattle.

A Case That Points a Moral

Such a customer is responsible for the printers presence among the wholesalers of paper, he puts his problem up to them and they in turn get in touch with mills making such grades of paper. From here we will follow just exactly what happens in a case of this kind.

Smith Co. paper jobbers have been visited by a representative of Jones Company, the big lithographers. This man told them that one of their best customers wished to change a certain grade of paper that he had been using for his firm's letterheads, to a better grade of paper. The customer was a very fussy individual and insisted that he would have to have the paper he had in mind at a price, very little in excess of what he had been paying. Smith showed the printer several samples of paper, two of which he selected, to show his customer. He returned next day and reported that sample marked A was pretty near right, but that the paper would have to be harder and the color brighter. Smith, though an experienced paper man, said that he knew he could get a mill that could make the required paper, so the printer gave him an order for five tons, and was very sincere in his warning for Smith to be absolutely sure that the paper would be right. Smith promised that it would be, and so the deal was started.

The printer made a mistake, when he did not insist on his customer giving him a sample of the exact grade of paper required, or going about until he found a sample that his customer would O. K.

Smith made the same mistake in not insisting that the printer produce a sample of the paper he wanted. It is queer how these things happen to experienced business men. Both Smith and Jones had been in trouble before by doing exactly as they were going to do in this deal, but once again past experiences were forgotten, for they never had had any trouble with the printer's present customer.

Salesman Gets the Order

The day after the printer's visit to Smith's store, Sam Dill the representative of the Prince Paper Company's mill dropped in and he was the very man Smith was looking for and in short order, he told Sam the story of the Jones order, and it so happened that Sam on this particular morning was in a very liberal frame of mind, for on the day previous, he had secured a very desirable business that he had been after for a long time. He was not as cautious as he usually had been in going over the details, connected with the Jones order, and agreed with Smith that the mill could easily improve on the color of the blue-white sample, and also make it snappier. Sam was not a paper maker, neither was Smith. Sam was an exceedingly good mill salesman, and showed good judgement in leaving things, having to do with the paper's quality to the paper maker at the mill, but in this particular instance, he did not do this and accepted Smith's order, just as Smith gave it to him. Sam arrived at his mill's office all smiles and goo will towards all men for he had had a very successful trip, and therefore looked for every one else to feel as good as he did. But Prince the owner of the establishment did not match Sam's state of mind, for the morning's mail had produced several complaints and one rejection of paper.

As Sam unfolded the results of his travels, Prince brightened up until the subject of the Jones order come up, and he expressed his doubt of being able to produce a paper that would fill the bill, at the price quoted.

He asked Sam several questions, none of which Sam was able to answer. Did Smith want a rag content paper? Sam did not know, the question had not come up. What would the business amount to in a year? Would Smith take seconds with perfects? All that Sam could say was that he wanted a paper like the sample only it had to be brighter and snappier. Smith asked Sam why he thought such a paper could be made for the price at which the order was taken, and Sam said he based his judgment on the price of their No. 3 Bond.

A Hoodo in the Mill

Prince sent for his mill manager and that worthy tore and chewed half of the sample up before he decided that it would cost more to match, than the price at which the business was taken. Various tests showed the sample was a better paper than the No. 3 Bond that Sam had in mind when he took the order, and so it came to pass that this particular order became a hoodoo in the

IMPCO

CLOSED SYSTEM FOR GROUND WOOD PULP

"IMPCO" KNOTTER *(For First Screening)*
Over 500 in use on all kinds of stock

"IMPCO" CENTRIFUGAL SCREEN
Nearly 1000 in daily use

"IMPCO" TAILING SCREENER
Over 100 in use

"IMPCO" REFINER ~ ~ *New*
A Great Success

We develop our own machinery, know how to build it and make it give results in your mill
Correspondence a pleasure

IMPROVED PAPER MACHINERY CO.

NASHUA, NEW HAMPSHIRE, U.S.A.

Canadian Factory: Sherbrooke Machinery Co., Ltd., Sherbrooke, Quebec

Prince Mill. Of course Sam now realized that he had been careless in taking the business, and now he was worried as to the final outcome, for he knew that Prince and the mill manager would not put into that order any extra stock or effort, when it already figured as a loss.

Smith was one of Sam's best customers, and Jones was one of Smith's best customers, but it now looked as if some one was going to be disappointed.

After a few days' of thought on the part of the mill officials, it was finally decided to make the paper on No. 2 machine on a Monday morning. Almost any paper maker knows, that Monday is the hardest day of any in the week, to make paper of uniform quality or even to match what the machine was making when it stopped the preceding Saturday, so the Prince mill was adding to the mistakes of Smith, Jones and Sam, when they decided to put this particular order on the machine at this time.

Even after the most thorough "wash ups" perfectly clean paper is seldom seen on a paper machine on Monday, until two or three hours after the machine has been started. So Sam's order was more specky than the Prince paper usually runs and it was not uniform in weight or color. The drying was uneven and the formation was not what it should have been. The paper did not receive the full attention of the superintendent, for there had been trouble in the boiler room that morning that engaged a good part of his attention, and Sam's order could be properly regarded as one of the poorest runs of the Prince mill's product.

Paper Shows Up Poorly

The paper went to the finishing room and the boss finisher called the mill manager's attention to its ununiformity. He told him to do the best he could with it and showed him what would pass as perfect stock, and what would not, but if Sam had seen what the mill manager's idea of perfect stock was, he would have decided then and there to put up a fight on letting the paper pass. Unfortunately Sam never paid any attention to his orders going through the mill, but depended entirely on the sample of the paper made, so he was not aware of the deficiencies his order for Smith carried, and was not very enthusiastic over the sample of the run when it came to his hands. The paper may have been a little snappier than Smith's sample, but it did not have as good a formation or finish as that paper. And as to color, it was bluer, but not what could be called brighter, in fact the blue shade made it duller, and when Sam called Prince's attention to these details, Prince said he thought good value was there and in regard to color it was a matter of opinion, as some people called a blue shade bright and that Sam should have gotten his customers idea of this in the first place.

The paper was shipped to Smith, also samples of the run. Upon receipt of samples Smith examined them very carefully and quickly concluded that they did not represent his idea of what the paper should be, and he wrote Sam a letter stating his disappointment and hopes that the samples did not represent the actual run. Sam read this letter with a heavy heart and knew that he was in for more or less trouble before the matter could be straightened out.

Prince read the letter and decided that Sam should go to see Smith and try to straighten things out.

Meanwhile Smith was in a quandry as to what was best to do. Whether to ship the paper to Jones or to first show him the sample, was the problem he was trying to decide. Finally he shipped the paper, hoping that good printing quality might offset poor qualities in other directions.

It so happened that the morning Sam paid his visit to Smith's office to try to conciliate him in connection with this business, Jones had Smith on the phone and was telling him in fiery language just what he thought of him and his paper.

While Sam was prepared to find Smith in an unpleasant frame of mind, he was by no means ready to receive the tongue lashing that Smith gave him. Sam could not get in a word, and Smith dragged him from the office to bring him to the plant of Jones to look over the paper that threatened to disrupt the business relations of them all.

When they arrived at Jones' office they found Jones hotter than Smith was and Sam was having some serious thoughts as to whether he was to get out of the muss alive.

They opened two cases of the paper, besides the two that Jones had opened and with trembling hands and voice Jones dilated upon the moral character of people who would try to kill his business by shipping such paper for one of his best customers, while Sam and Smith stood silent and dejected, taking everything that Jones's vocabulary could give them and he gave them from the fall of Rome to the invention of the Radio.

All Sam could do was wipe his fevered brow, he could not say a word that would excuse the defects and ununiformity of the paper, this he realized as he looked it over; he candidly told them that a brain storm must have hit the mill when the paper was made and gave them orders to ship it back at once.

Sam reached his mill before the paper. He tried to give the mill manager some of the stuff he received from Smith and Jones, but mill managers as a rule will not take those kind of things from paper salesmen, and only the arrival of Prince, prevented more than words being used between Sam and the manager.

Paper Manufacturer Hears the Story

Same told Prince in elegant detail of his experience with Smith and Jones and also that he never expected another order from Smith as long as he lived. He went on to point out how the mill had undone his years of hard work in developing Smith's business. Prince listened quietly to Sam's ravings, as well as a blast now and then from his mill manager, who remarked that salesmen who took orders without knowing what the order was must expect to be disappointed once in a while. Prince let the subject die out as quietly as possible, having made up his mind what he would do to straighten the matter out, and while Sam was still muttering he prepared to take a trip to see Smith the following day.

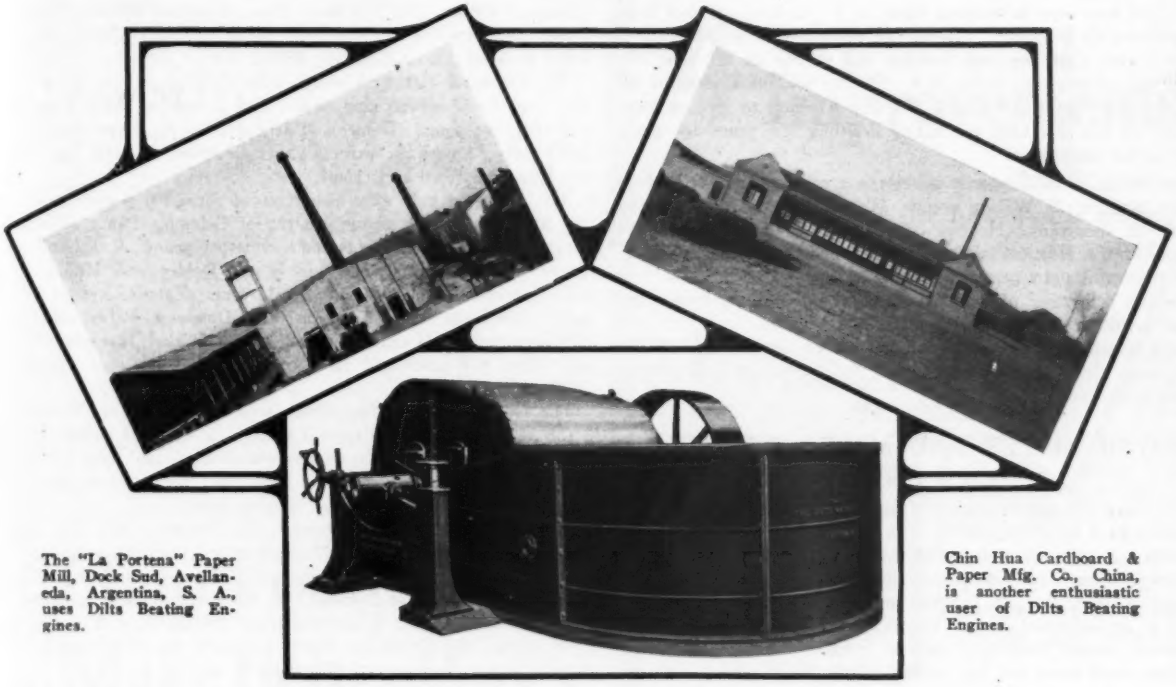
Upon arrival at Smith's place, Prince was very coldly greeted and realized that Sam did not exaggerate his story as to the way Smith felt about matters. However, Prince was a master mind in affairs of this kind and he let Smith have his full say, before attempting to put his viewpoint of the matter before him. He was careful not to say anything that would increase Smith's feelings of bitterness, and gradually Smith drifted to other matters and began to recall similar experiences. This was just what Prince was waiting for and he too told Smith of the troubles he had been through as a maker of paper. At just the right moment, he said to Smith:

How the Matter Was Settled

"Smith, you and I have been in this paper game a good many years; We have made a good many mistakes, and our experiences should teach us how to avoid trouble which at this time brings me here. Unfortunately we do not always remember our lessons. and neither do the experienced men we employ to help carry on our business, so let us go over this matter carefully and see where we were wrong in the Jones order. We were wrong in putting the order on the machine on a Monday. We were wrong in allowing the paper to leave the mill, until closer inspection had been made. Sam was wrong in taking the order at the price quoted, and he did not go into the matter as thoroughly as he usually does. Jones was wrong when he let his customer believe that he could supply him that quality of paper for such a price, and you misled Jones, when you did not tell him that it might not be possible to produce what he wanted, at the price named. In my humble opinion we were all neglectful on this business and did not give it the attention it called for, and that is why I come down to see you, I wanted to tell you these things and I would

(Continued on page 62)

Dilts-



The "La Portena" Paper Mill, Dock Sud, Avellaneda, Argentina, S. A., uses Dilts Beating Engines.

Chin Hua Cardboard & Paper Mfg. Co., China, is another enthusiastic user of Dilts Beating Engines.

IN FOREIGN LANDS

Dilts Beating Engines, recognized as standard equipment in so many American paper mills, are also demonstrating their value abroad—new mills in China, Japan, Australia, England and South America have installed Dilts Beaters, for our over-seas brethren are quick to recognize merit and profit by America's experiences.

You in America must look to your laurels. Your paper is made in your beaters.

7362

Dilts

MACHINE WORKS, Inc. FULTON, N.Y.

EXPORT OFFICE ~15 PARK ROW~ NEW YORK CITY

Obituary

Thomas N. Cook

BOSTON, Mass., October 27, 1924.—In the death of Thomas N. Cook, Senior partner of the well known paper house of Cook-Vivian Co., 189 Congress street, the trade lost one of its recognized leaders. Mr. Cook was born in Watkins Glen, N. Y., 73 years ago but lived most of his life in Boston. Twenty-five years ago the present firm of Cook-Vivian Company was founded and during all the time Mr. Cook was an inspiring leader of it. He has held office in all of the various paper trade associations and was reluctant to give up some service of this sort until his failing health a few years ago made such action imperative.

One of Mr. Cook's favorite hobbies was roses and in the gardens of his home at 27 Winsor avenue, Watertown, Mass. were many wonderful specimens. He has taken numerous prizes for perfect blooms at the Horticultural Exhibitions and was conceded to be very successful and a genuine authority on rose culture.

He was a member of the Odd Fellows and Masonic bodies and leaves besides a widow, two daughters and one son.

As a tribute to his memory and his service to the trade all the local paper jobbing houses closed for the funeral at 2:30 o'clock Friday afternoon.

BUYER, SELLER AND MAKER OF PAPER

(*Continued from page 60*)

like to have the opportunity of stating the case to Jones and his customer as I have to you."

Smith was pleased and readily assented to interviewing Jones and his customer. Prince put the matter before these gentlemen in such a way, that he secured an order for a remake of the paper at an additional cost of two cents per pound and every one concerned seemed hopeful of desired results.

Prince went home and had an Old Home Week session with his manager and Sam, and when Jones's order was remade, it was all if not better paper than was promised and everyone was perfectly satisfied and a fairly large business came to the Prince mill, eventually.

The foregoing incident is one that will appeal to those who have been through similar experiences, and the paper man of experience knows that such things will happen in the best conducted establishments, and that the more frequently we hear of these things, the greater will be the effort to avoid them.

Moral: No little order for paper, is too small to receive the same consideration, that is given to larger ones, for from small orders big orders grow.

Henry F. Fulling Co., Inc., to Move

Henry F. Fulling Company have leased the store and basement at 230-232-234 West 17th street and will take possession February 1, 1925.

This business was established in 1897 by Henry F. Fulling, and was incorporated January 1, 1920, with Henry F. Fulling as president and Charles Greif as treasurer. Henry F. Fulling disposed of his interests the early part of 1921 and Charles Greif became president and still heads the concern. Eugene F. Brennan is secretary and treasurer.

Mr. Greif is just completing twenty-one years with the concern and feels optimistic regarding business conditions which justify increasing their space by approximately 50 per cent. The present location is 120-122 West 18th street and the new location is 230-232-234 West 17th street. This is a 100 per cent fireproof building and is equipped with a sprinkler system.

They carry a general line of wrappings, tissue, cardboard, twines, toilet paper and paper towels.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., October 29, 1924.—The Government Printing Office has received bids for 40,000 pounds of 24½ x 34 No. 35 boxboard; Whitaker Paper Company $53.91 a ton; C. L. LaBoiteaux Company $53.10; Republic Paper Board Company $53.85; Mathers Lamm Paper Company $50.50; R. P. Andrews Paper Company $58.40; Old Dominion Paper Company $66.80; Virginia Paper Company $54.90; Broderick Paper Company $54.60; Barton, Duer & Koch Paper Company $53.75.

The following bids were received for 7,725 pounds of 30 x 40—51½ No. 16 lithograph map paper: Old Dominion Paper Company 21.9 cents per pound; Dobler and Mudge 20 cents; Reese and Reese 20.43 cents; American Writing Paper Company 24 cents, and Barton Duer and Koch 17.45 cents.

The following bids were also received for 8,000 pounds of 19 x 24—80 white blotting paper: District of Columbia Paper Manufacturing Company at 8.57 cents and 8 cents per pound; R. P. Andrews Paper Company at 8.75 and 12 cents; Dobler and Mudge 8.75 cents; Joseph Parket and Company 13 cents; Eaton Dikeman Company 11.65 cents; and 12.4 cents; Old Dominion Paper Company 8.99 cents and 12.24 cents; Lindemeyr and Harker 13 cents; Reese and Reese 8.66 cents and 10.92 cents; Whitaker Paper Company 10.37 cents.

The Government Printing Office will receive bids on November 3 for 34,450 pounds (650 reams) of 31½ x 45½—53, white M. F. book paper. Bids will also be received on the same date for 9,000 pounds (50 reams) of red rope paper and for 2,400 pounds (30 reams) of 19 x 24—80, salmon blotting paper.

The Printing Office has received the following bids for 4,700 pounds of 21 x 32—23½, No. 13 green glazed manifold bond paper: Virginia Paper Company, at 22.75 cents per pound; American Writing Paper Company, at 21 cents; R. P. Andrews Paper Company, at 19.74 cents; Dobler & Mudge, at 23 cents; Reese & Reese, at 19.95 cents; Old Dominion Paper Company, at 19.99 cents; and Aetna Paper Company, at 15.27 cents

The following bids were also received for 30,000, 3½ x 6 fine white bond envelopes and for 10,000, 4¾ x 7⅛ of the same: Union Envelope Company, at $3.28 per M; R. Carter Ballantyne, at $2.64 and $5.04, and $3.84 and $10.22; Charles W. Beers & Co., at $4.25; and R. P. Andrews Paper Company, at $3.68 and $10.90, and $4.10 and $13.35.

The following bids were also received for 15,400 pounds of 24 x 38—77, double coated two sides book paper, for 49,000 pounds of the same and for 26,950 pounds of the same rag book paper; Allied Paper Mills, at 8.75 cents, 8.2 cents and 11.5 cents; Broderick Paper Company, at 11.95 cents, 10.95 cents and 13.45 cents; Old Dominion Paper Company, at 11.99 cents, 10.99 cents, 13.49 cents, 12.49, and 13.99 cents; Whitaker Paper Company, at 11.3 cents, and 12.23 cents; Bryant Paper Company, at 8.97 cents, 9.47 cents and 13.25 cents; and Kalamazoo Paper Company, at 9.25 cents, and 8.75 cents.

Testing Glue Coated Paper

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., October 28, 1924.—The Paper Laboratory of the Bureau of Standards has forwarded to two different concerns experienced in printing coated papers, samples of glue coated papers made in a commercial mill for test as regards printing quality, according to an announcement just made public.

Pick tests showed that the commercially made paper did not have as good adhesion of coating as paper made in the laboratories mill. The cause of this difference is being investigated as it is thought that possibly the commercial practice in this respect can be improved. Some experiments are to be made shortly, it is understood, as regards the use of glue with other coating minerals in common use such as satin white and blanc fixe.

Help Your Men Make Better Paper

Regardless of how fine a paper your men are making, it lies within your power to help them improve its quality and *at the same time lower the cost of production.* This is not an exaggerated statement. A letter to us will bring you proof.

4 Improvements

In your paper is possible if you install one of the new Voith High Pressure Stock Inlets on your Fourdrinier machine.

1. The Voith Inlet makes it possible to produce a sheet of uniform thickness across the entire width of your machine. Minute adjustments governing the caliper of the sheet are easily and quickly made. All aprons and slices above the wire are eliminated.

2. The new Inlet results in a better formation. This comes because the entire surface of the wire is available for formation purposes.

3. The Inlet eliminates all foam spots and lumps. A cleaner, better sheet is always made after it is installed.

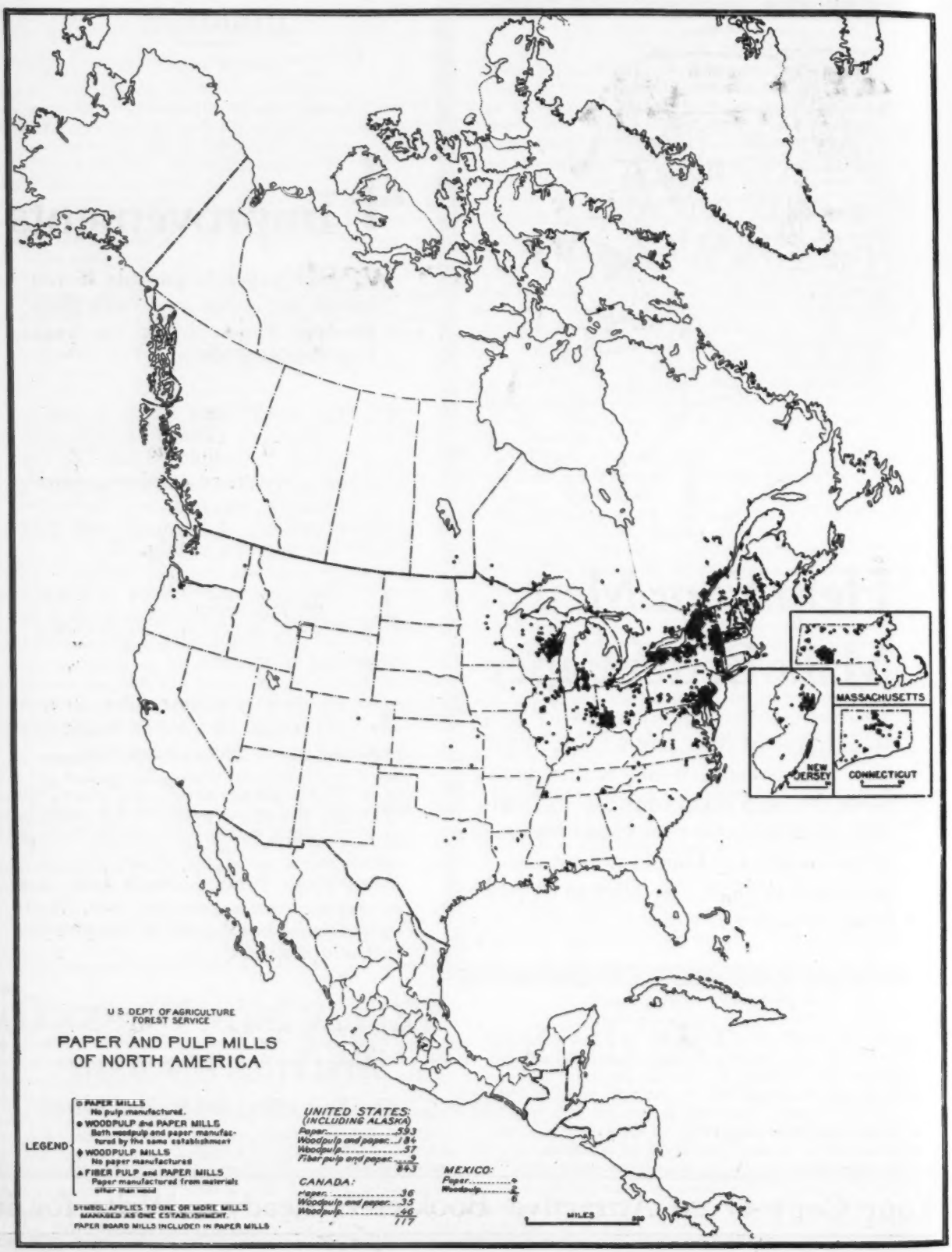
4. Fewer breaks result, and your rolls are therefore better. All of these improvements in your product follow immediately upon the installation of a Voith High Pressure Stock Inlet, *and production costs are lowered also.* Write today for our booklet which will give you full information.

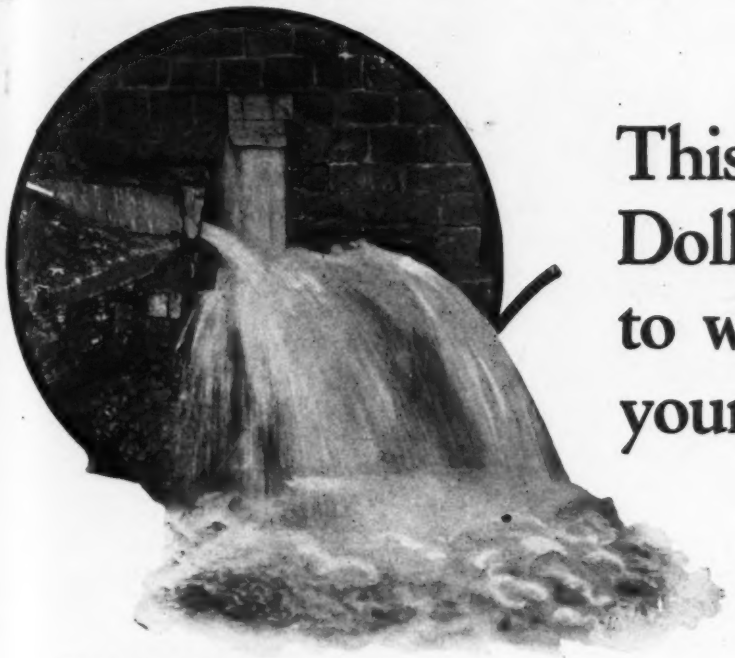
VALLEY IRON WORKS CO.

APPLETON, WISCONSIN

New York Office: 350 Madison Avenue

Your Copy *of an* Attractive Booklet *is* Ready. Write for it


MASSACHUSETTS
NEW JERSEY
CONNECTICUT
U.S. DEPT. OF AGRICULTURE
FOREST SERVICE
PAPER AND PULP MILLS
OF NORTH AMERICA
LEGEND
□ PAPER MILLS
No pulp manufactured.
● WOODPULP and PAPER MILLS
Both woodpulp and paper manufactured by the same establishment
◆ WOODPULP MILLS
No paper manufactured
▲ FIBER PULP and PAPER MILLS
Paper manufactured from materials other than wood
SYMBOL APPLIES TO ONE OR MORE MILLS MANAGED AS ONE ESTABLISHMENT.
PAPER BOARD MILLS INCLUDED IN PAPER MILLS
UNITED STATES:
(INCLUDING ALASKA)
Paper 593
Woodpulp and paper 184
Woodpulp 57
Fiber pulp and paper 9
843
CANADA:
Paper 36
Woodpulp and paper 35
Woodpulp 46
117
MEXICO:
Paper 0
Woodpulp 2
2
MILES



This is a reproduction of a mill discharge of white water. Dollars are flowing to waste in stock in this white water that could be recovered efficiently and economically.

This is where Dollars are flowing to waste daily in your White Water

Put the Dorr Save-all to work in your mill saving the stock now going to waste. It's like a bank —it pays interest.

Every day you allow your white water to flow to waste you are actually allowing dollars to flow away. Flow readings show that the value of the stock sometimes runs as high as $60.00 per day.

Save this unnecessary waste! Install the Dorr Save-all! Not only will you recover from 90% to 98% of the stock, but its installation will prove a dividend paying proposition. Actual data obtained shows that the Dorr Save-all in one installation, produced a financial return of over 500% per year.

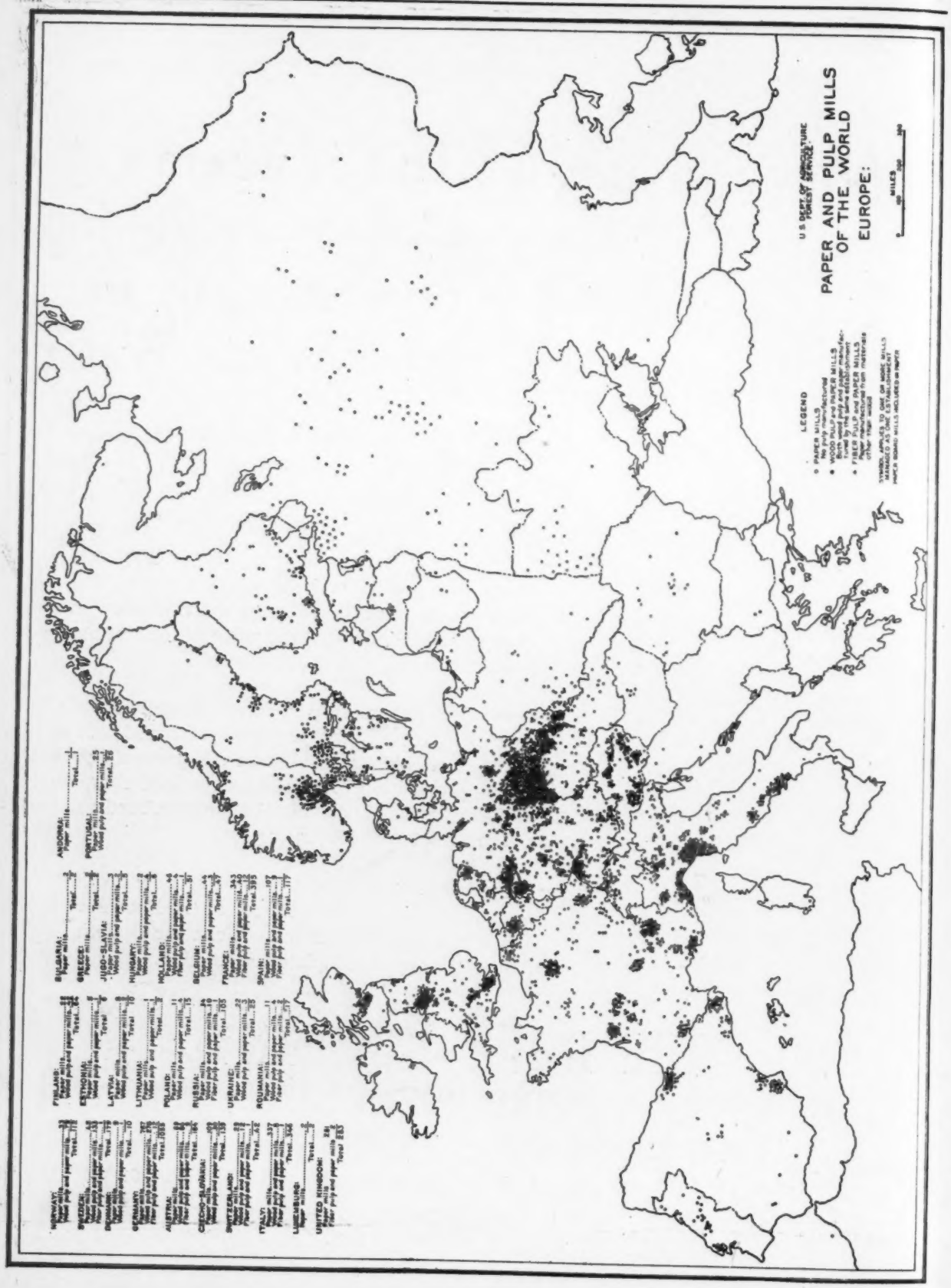
Why delay! Turn the white water now flowing to waste into dollars—with the aid of the Dorr Save-all. It's a gilt edge investment. Write for Bulletin No. 25 that gives you complete information.

THE DORR COMPANY
ENGINEERS

247 Park Avenue New York City

Denver, 1009 17th St. Chicago, 38 South Dearborn St. London, E. C. 16 South St.

RESEARCH TESTS DORRCO DESIGN EQUIPMENT


PAPER AND PULP MILLS
OF THE WORLD
EUROPE:
LEGEND

Missisquoi Pulp & Paper Co.

MANUFACTURERS OF

FINE CARD BOARD AND SPECIALTIES

Sheldon Springs, Vermont

Exterior View of Plant

Missisquoi

A MODERN PAPER AND PULP MILL

Representing An Investment of $3,000,000—Designed and Built By Its Own Engineers

Sheldon Springs, Vermont! How many are acquainted with this section and the fact that it was once noted as one of the leading fashionable health resorts of this country? Aside from its natural beauty and surroundings, the waters of its various springs, noted for their purity, attracted thousands to this spot located near the Canadian line. The possibility of its ever becoming a paper manufacturing center was not realized in the hey day of its resort career until two young men, young in years but long in experience in the manufacture of paper and pulp as well as in mill construction, twelve years ago visualized the future for this spot as a location for a prosperous business venture in the manufacture of paper. The result of this foresight is now witnessed in the completion of one of the most up-to-date paper and pulp mills to be found anywhere.

These two young men were A. P. Ramage and H. E. Raymond, respectively treasurer and general manager and vice-president of the Missisquoi Pulp and Paper Company. At the time of their invasion there was located at Sheldon Springs a pulp mill established in 1897 and owned by J. T. and D. M. Shepley, noted for the excellent quality of the pulp it was producing. The Messrs. Shepley were successful because they lived up to the traditions of New England manufacture "Quality Product and Service to the Customer." When Messrs. Ramage and Raymond acquired their interest in the Shepley plant they had in mind the erection of a conversion mill which would in turn produce a product that would earn an enviable reputation for its uniform quality.

The first step in this direction taken twelve years ago was the erection of a new one machine paper mill. The latest equipment of that time was installed, but changes have been frequently made in order to put the plant on an efficient operating basis as well as to increase its production at the same time maintaining the high standard of quality of its products.

Although new equipment was installed at various periods in the efforts to keep pace with the demand for its products, the mill has been unable to keep up production sufficiently to take care of its increasing number of orders. It is interesting here to note that the mill has never been shut down a single day since it was started for the want of orders.

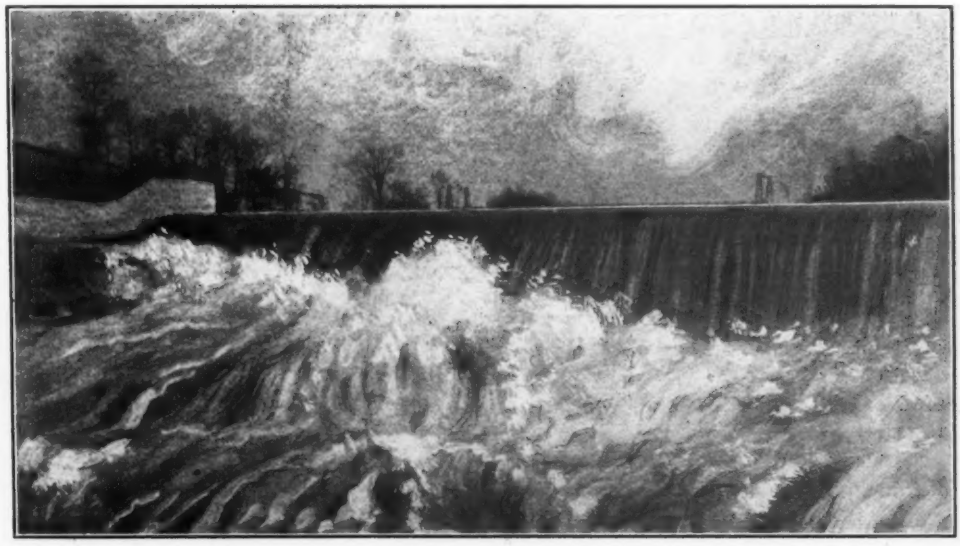
Types of Officials and Employees' Homes

Missisquoi

The company has just completed and started operating a new addition to its plant which includes a new 99" cylinder paper machine made by the Sandy Hill Iron and Brass Works of Hudson Falls, N. Y. This makes two machines of the same character and same make now in operation, thereby doubling the capacity of the mill, the products of which are fine and superfine cardboard, white and tinted bristol boards, post card stock, index cards, sample card and specialties. In addition to its present pulp and paper mill plants the company owns a complete water power development of approximately 5,000 H. P. and an undeveloped water power of 3,000 H. P. The company controls the exclusive riparian rights of the Falls through ownership of 680 acres of land located on both sides of the Missisquoi River and also has built seventy homes for its employees in Sheldon Springs. It further maintains a dairy and produce farm for supplying foodstuffs to its employees. This Missisquoi Watershed covers about 850 square miles heavily stocked with pulpwood and as there are no further possible water power developments the driving facilities are well protected. The pulp and paper mill with their attendant developments represent an investment of close to $3,000,000.

The plans, construction work and selection of equipment were entirely in charge of H. E. Raymond who supervised the whole situation. He did not follow out traditional lines, but selected only what would be best adaptable and most practical for the mill. Mr. A. P. Ramage who comes of a family of paper makers of long experience and recognized as leaders in their profession, has devoted his attention largely to the production and sale of the product of the mill. The success of his efforts is shown in the fact that the plant has never been shut down a single day for lack of orders and also emphasizes the quality and character of the product manufactured.

Among the concerns whose equipment is employed in the operation of this mill are the Jeffrey Manufacturing Co., Columbus, Ohio, makers of the Conveyors; Manitowoc Engineering Co., Manitowoc, Wisconsin, makers of the "Paulson" Barking Drums; Glens Falls Machine Co., Glens Falls, N. Y., makers of the pulp grinders; Improved Paper Machinery Co., Nashua, N. Y., whose Pulp Screens and Knotters are used; Sandy Hill Iron & Brass Works, Hudson Falls, N. Y., who built the two 99-inch Cylinder Paper Making Machines now installed in the plant and whose Pulp Presess are also



The Missisquoi Dam

Missisquoi

Two views showing the paper machines which are located side by side.

Missisquoi

used. The Jordans used are the "Imperial" motor driven Jordans manufactured by E. D. Jones & Co. of Pittsfield, Mass., who have an installation of four of this latest type Jordan engines; the battery of Beaters employed are the well-known "Horne" Beaters made by J. H. Horne & Sons, Inc., of Lawrence, Mass; the Shartle Brothers Machine Co., Middletown, Ohio, furnished the Stuff Pumps and the Multiple Fan Pumps, which bear their well-known trade name "Shartle." The Drives applied to the press roll, couch roll and suction roll is the "Farnham" Automatic Compensation Driving Mechanism manufactured by the Farnham Manufacturing Co. of Buffalo, N. Y., and which drive has been specially designed primarily for use in paper mills. As an improvement on Press Cylinder Mold Drives it is claimed for this drive that it prevents variation in speed between the driving and driven parts but automatically accommodating itself to any uneveness in its receiving power. Another advantage claimed for it is that there is no danger whatever of breakage should there be any unusual increase in speed due to breaking of belt or other cause. In its application to Cylinder machines each Cylinder Mold is driven independently of the felt, thus removing all strain or wear on the felts, thereby prolonging their life and service. The Calender rolls and stack were made by the Farrell Foundry & Machine Co., Ansonia, Conn., who also have installed in the plant one of their "Farrell" Roll Grinders. The turbine waterwheel equipment installed in the plant is that of James Leffel & Co., Springfield, Ohio, the oldest continuous builders of turbine waterwheels in this country, having been builders of waterwheels for over sixty-two years. The turbines used were built from models tested in the Official Testing Room at Holyoke, Mass., where many turbines are officially and impartially tested by disinterested hydraulic engineers. The first turbine unit installed in the Missisquoi plant was installed by James Leffel & Co. in 1896 and since then, this concern has furnished several other designs of installations. The "Witham" drying system was made by the American Blower Co. of Detroit, Mich., who also furnished the complete Blower equipment.

The Winder employed on paper machines was made by the Moore & White Co., Philadelphia, Penna., while trimmers in Finishing Room were made by Smith & Winchester Mfg. Co., So. Windham, Conn., and the Seybold Mfg. Co., Dayton, Ohio. A new "Hamblet" cutter made by the Hamblet Machine Co. is being installed in the new addition to the plant, which also contains the latest model "Cameron" rewinding machine made by the Cameron Machine Co., Brooklyn, N. Y.

The sprinkling, ventilating and heating systems, which are a very important part of new installations, is the "Witham" recirculating ventilating system for paper machines installed by The Jennison Co., Fitchburg, Mass. One of the distinctive features of this system is the special hood in which a cross current of air from front to back of machine over dryers is secured. The "Witham" dryer system through the use of cross current of air ceiling in the hood enables all dryers to do equally efficient work as vapor is absorbed by warm dry air supply to front of machines and is carried away by positive current toward the back of machine as soon as it leaves the drying sheet. It is claimed where this "Witham" system is used that tonnage is increased approximately 25 per cent while coal consumption per pound of paper is reduced 20 per cent. During the winter season, the system is operated as a closed system the air being recirculated, but provision is made so that in emergency or in summer time, the air can be discharged to the atmosphere going through the washing apparatus and the heat in it reclaimed. The air being used over and over gain saves all the steam to heat the air which is ordinarily exhausted to atmosphere and thereby a large quantity of clean warm water is secured which can always be used to advantage.

The filters used throughout the plant in various water filtering processes are those manufactured by the Norwood Engineering Co., Florence, Mass. An interesting feature of the construction work of the mill is the roofs which were built by the Structural Gypsum Corp. of New York. These roofs are built to prevent condensation and are made of "Gypsum" composition which makes a most effective insulator. It is contended that in conditions approaching

Missisquoi

Top (left)—View of Witham system on new machine. Top (right)—Showing motor control. Center (left)—Flumes in boiler room. Center (right)—Electric motors and control. Bottom (left)—New beater room. Bottom (right)—New machine with hood.

complete saturation of indoor air, condensation has been prevented by use of "Gypsteel" roofs in combination with adequate ventilators to carry off moisture laden air. Another feature is that the "Gypsteel" roof insures a definite strength of permanence eliminating repairs and renewals.

The plant is of concrete structure, the Company having built its own stone crushing plant which furnished the stone used in the concrete, the cement for this being furnished by the Atlas Portland Cement Co. of New York, the construction work being done by P. E. Sullivan, Contractor, St. Albans, Vt. The structural steel was furnished by the Palmer Steel Co. of Springfield, Mass., and the plant, being of fire-proof construction, is equipped with steel sash windows furnished by the Truscon Steel Co. of Youngstown, Ohio. The Nash Engineering Co., South Norwalk, Conn., furnished the Power Pumps, while the Water Pumps are of the "Gould" type manufactured by the Gould Manufacturing Co., Seneca Falls, N. Y. Boilers made by the Babcock & Wilcox Co., of New York are part of the installation, the fire bricks being furnished by the A. P. Green Fire Brick Co. of Mexico, Mo., while the fire brick cement and linings are products of the Botfield Refractories Co. of Philadelphia, Penna.

The entire electrical equipment, motor drives, etc., was furnished by the General Electric Co., Schenectady, N. Y. The power transmission machinery was built by the Hill Clutch Machine & Foundry Co. of Cleveland, Ohio, and the friction clutches, used universally throughout the plant, are the products of the McMahon & Co. of Worcester, Mass. The electrical fittings were furnished by the Western Electrical Co. of Chicago, Ill., and also by Pettingell-Andrews Co. of Boston, Mass. Waterwheel Governors are from the Woodward Governor Co., Rockford, Ill.; boiler feed regulators from the Williams Gauge Co., while the cranes and hoists were built by Yale & Towne Manufacturing Co. of Stamford, Conn.

An item of equipment which is given possibly the least consideration by the individuals identified with an industrial plant of any character is that of elevators and yet this equipment plays a most important role in the handling of raw materials and finished products. The importance of this feature was not overlooked in the construction of this plant. The well-known elevators, which are possibly in use in every paper and pulp mill, the products of the Craig-Ridgway Co. of Coatesville, Penn., are installed in this plant and have been in use since the first unit of the mill was built.

The P. J. Kennedy Co. of Holyoke, Mass., engineers and contractors, furnished the settings for the boilers. The stokers were furnished by the Illinois Stoker Company of Alton, Ill., makers of Chain Grate Stokers.

Missisquoi Products

are always recognized

by their

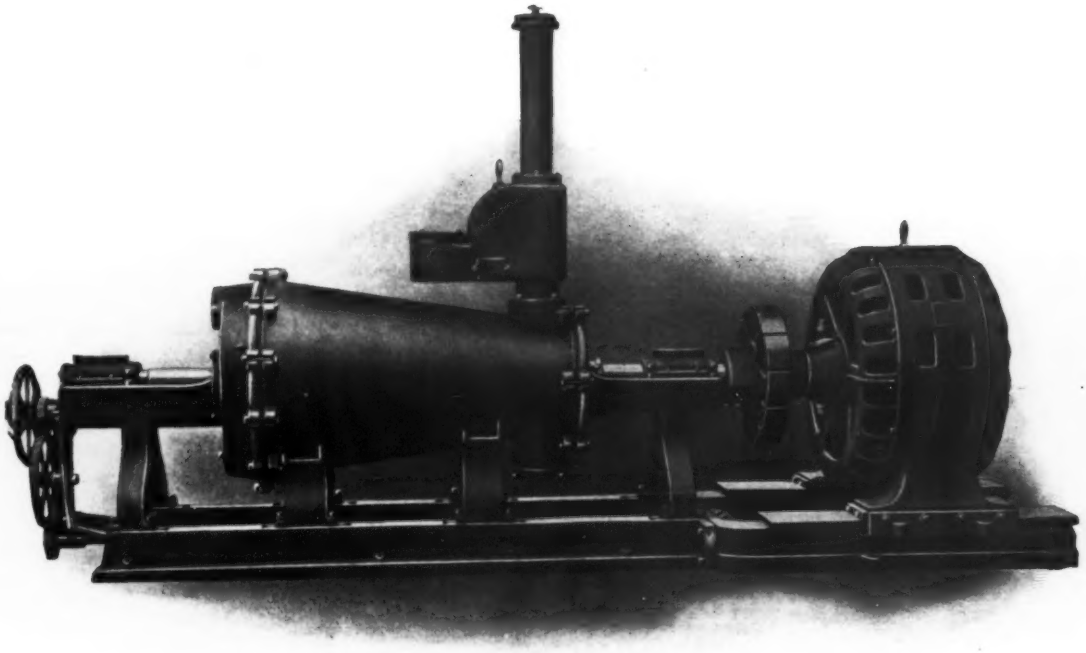
Uniformly High Standard

of

Quality

Missisquoi

IMPERIAL
MOTOR DRIVEN JORDAN



E. D. JONES & SONS COMPANY

PITTSFIELD, MASS.

Missisquoi

SPECIAL RECIRCULATING VENTILATING SYSTEM FOR PAPER MACHINE

A new method of carrying away the vapor rising from the dryers has been installed in this mill by The Jennison Co., of Fitchburg, Mass., who in conjunction with Mr. H. E. Raymond, Gen'l. Mgr., of the Mississquoi Pulp & Paper Co. have designed and installed all the piping in the mill as well as this ventilating system.

One of the distinctive features of this system is a special hood in which a cross current of air from the front to the back of the machine over the dryers is secured.

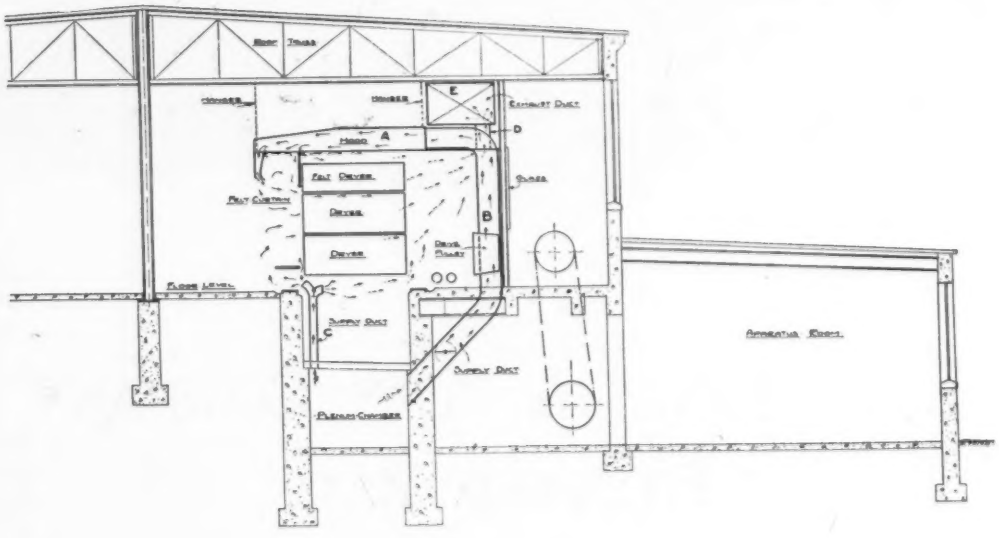
In the standard hood design the vapor under the sheet caused by the drying of the paper must find its way to the edges of the sheet before it can be carried away by the fans on the roof over the hood. Tests have shown that with a hood as ordinarily used the first few dryers do not dry at all, but simply heat the web of the sheet to a point where drying becomes possible. The dryers through the middle half of the stack do the most of the drying, while the energy of those in the last quarter of the stack is largely absorbed in drying out of the sheet the vapor which has not been able to escape around the edges during the drying process through the middle half of the stack and which has been pressed back into the sheet. With the cross current of air as secured in the hood design used all this is eliminated and the vapor is absorbed by the warm dry air supplied to the front of the machine or is carried away by the positive current toward the back as soon as it is given off from the drying sheet, thereby causing a condition where all dryers can be made to do equally efficient work.

Some of the claimed advantages of this system over the old method are:

1st. A sheet is evenly dryed across its entire width, all soft spots due to imperfect drying having been eliminated.

2nd. All the dryers work at their maximum efficiency in drying the sheet and not part of their energy being absorbed in re-drying the imprisoned vapor released by other dryers but not able to escape. This gives the dryers greatly increased capacity.

3rd. This increased capacity means greater tonnage per day, provided the wet end of the machine has the excess capacity required or a decreased coal consumption per pound



of paper due to the lower steam pressure required on the dryers when working at their increased efficiency. On one machine where this hood design has been used the tonnage has been increased approximately 25 per cent while the coal consumption per pound of paper has decreased 20 per cent

4th. It allows the use of a top dryer felt on the machine when such a felt is desirable.

5th. The air is used over and over again as will be shown later. This saves all the steam required to heat the air ordinarily exhausted to the atmosphere and avoids the unsightly cloud of steam commonly seen on machine room roofs.

6th. A large quantity of clean warm water is secured which, in practically all mills, can be used to advantage.

Figure No. 1 shows in general the design used. The hood itself is double and hung from the roof trusses. The top surface is made of galvanized sheet iron and the bottom side of ¼" asbestos wood impregnated to make it moisture proof. The front drop apron is made of heavy gauge iron to withstand abuse and is equipped with dampers to control the amount of air discharged at any point. Behind this apron and just above the edge of the dryers is a felt curtain to stop short apron circuiting of the air currents over the top of the machine. This curtain is in short lengths and weighted with continuous rods so it can be rolled up out of the way when repairs or removals are being made.

The rear wall which with the hood make an enclosure around the machine is located just inside the drive pulleys. This part of the machine is toward the outside wall of the building. The top part of the partition is glass and steel sash and the bottom part removable steel panels to facilitate repairs. The ends are closed as close as possible and steel doors for admittance to the space between the machine and the partition are supplied wherever necessary. This arrangement allows a tight compartment without sacrificing any light. It also allows the operatives to observe the rear of the machine without the necessity of going into the hot moist air in the enclosure.

Hot dry air is supplied to the plenum chamber under the machine pit by a fan and heater. The steam used in the heater is at atmospheric pressure or less and is supplied by the exhaust from the dryers supplemented by live steam through a vacuum type pressure reducing valve when necessary. The drip from the heater is trapped to the main vacuum return system.

From the plenum chamber a part of the air is carried to the double hood "A" through several supply ducts "B," a portion to the under side of the machine through a number of ducts "C" and a part through a large duct to the wet end of the machine where it is discharged into the room over the cylinder vats. The air that goes to hood "A" is partly discharged down the front of the machine while a small balance is discharged horizontally on the under side of the hood through two small slots, one in front of the felt curtain and one near the rear of the hood. These two streams of air prevent moist air pockets forming and condensing on the under side of the hood.

The air from ducts "C" is partly discharged up the front of the machine and partly across the felt under the machine. With the downward air current from hood "A" and the upward current from ducts "C" a nearer continuous curtain of air very much warmer than the temperature of the room is formed and drawn across the dryers without materially effecting the temperature of the room.

While crossing the dryers the air is absorbing the vapor given off by the drying paper or is carrying it to the space back of the machine where it is exhausted through ducts "D" to the main exhaust duct "E" at a high temperature and high relative humidity.

The amount of air exhausted through duct "E" is not only the equivalent of that supplied through hood "A" and ducts "C," but also that supplied to the wet end of the machine, thereby causing a current over the vats and presses toward the dryers, absorbing a large part of the water vapor liberated at these points.

From the main exhaust duct 'E" all the hot moist air is carried to a special washing equipment where the heat and moisture is extracted from the air so that when the supply fan takes it to be reheated and delivered to the pleum chamber it is at a low relative humidity.

During the winter the system will be operated as a closed system with the air being recirculated but provision is made so that in an emergency or in the summer time the air can be discharged to the atmosphere after going through the washing apparatus and the heat in it reclaimed. During these times, air from the room will be used for the supply.

Filtered water is supplied to the washing apparatus where it mixes with the heated air exhausted from the hood, thereby extracting the heat from the air and transferring it to the water. On a machine of 25 tons' capacity the amount of warm water thus secured will be approximately 300 gal. per minute, which can be advantageously used where cold water is now used, but where warm water would be preferable provided it could be supplied without the use of steam which is more valuable than the warm water secured.

Missisquoi

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FITCHBURG, MASS.

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Paper Mill Piping ∴ Automatic Sprinkler Systems
Light and Heavy Sheet Metal Work

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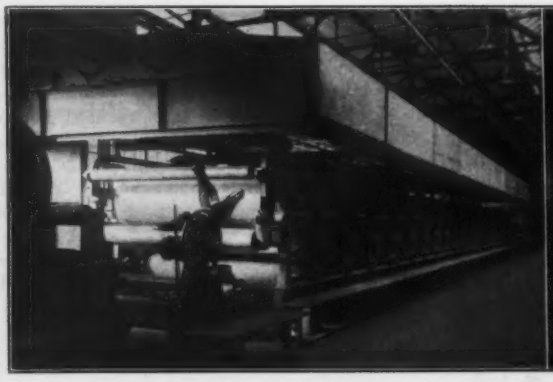


"Beloit" Supremacy

1 NEARLY SIX MONTHS' WIRE LIFE!

A Michigan Mill Removed a Fourdrinier Wire from a Beloit Machine that had run Continuously (except Sundays and holidays) from November 18th, 1923, until May 3rd, 1924.

An exceptional performance for even a Beloit, but numerous instances may be cited of three months' life at 650 ft. per minute and over.

2 INSTANT RETURN ON THE INVESTMENT!

A New York Mill started their New Beloit and were making marketable 20-Pound Paper in counter rolls 15 minutes after the stock was turned on the machine!

A BELOIT Starts in *Producing!*

3 50 Pound Kraft at 650 Feet
100% Test
Accomplished and Maintained on the New
BELOIT FOURDRINIER

4 50 TONS DAILY JULY AVERAGE

—Paper—Kraft
—Basis—20 Lb. to 50 Lb.
—Trim—142" to 144"
—Machine—Beloit
—Fourdrinier—New Type

5 GROWING TWO BLADES OF GRASS IN PLACE OF ONE

With High Labor Costs Our Only Salvation is Through Improved Methods and Machinery.
The New Beloit Fourdrinier is Making Better Paper at a Higher Speed.

6 An Aid to Wire Life!
THE BELOIT SUCTION BOX OSCILLATOR

Keeps Covers Smooth
Improves Guiding of Wire
Saves Wire Edges
Saves Wear on Guide
Makes More Paper per Wire

7 IMPROVED METHODS AND MACHINERY OFFSET HIGH LABOR COST!

The Beloit Removable Fourdrinier
Gives Added Hours of Production!
Changing a Wire in an Hour or Less
Is a Common Occurrence.

8 OIL TIGHT! WATER PROOF!

The New Beloit Bearing, through ample, scientific lubrication, Reduces Power Consumption and Largely Eliminates Water Cooling on Press and Calender Boxes.

9 INJURIOUS HEAT AND POWER WASTE DEVELOP WHEN THE OIL FILM IS BROKEN

The New Beloit Bearing Maintains a Copious Film, Largely Eliminating Necessity of Water Cooling.
A Simple, Rugged Bearing for All Places on the Paper Machine.

10 THE NEW BELOIT DRIVE

No Gears nor Friction Clutches
A SIMPLE, RUGGED DRIVE
for Paper Machines that require
NO EXPERT ATTENDANCE

11 NOISE MEANS WEAR!

Wear Results in Repair Bills.
The New Beloit Paper Machine Drive is *quiet*, efficient, but above all, Simple.
Having no gears nor friction clutches, repairs are reduced to a minimum.
Now In Successful Operation.

12 PRESS THE BUTTON!

And the New Beloit Drive operates.
No Gears, No Frictions, No Noise, Minimum Wear (Hence Minimum Repairs)
Bill and Jim Can Understand and Run It

Beloit Iron Works — **Beloit, Wis., U.S.A.**

Established — Since 1858

AS YOU PLEASE, BUT VOTE!

Editorial

Vol. LXXIX New York, October 30, 1924 No. 18
HENRY J. BERGER, Editor

BETTER BUSINESS AFTER ELECTION

Before the next issue of the PAPER TRADE JOURNAL appears the presidential election will be over and, no matter how we vote, it is safe to say that the morning of November 5 will find us unanimous in drawing a sigh of relief.

There have always been those who branded as a fallacy the idea that a presidential election is a business deterrent but we fancy a great many converts have been made, during the last few months, to the theory that presidential elections and banner business do not walk hand in hand.

There are few who will care to dispute the statement that the paper business has not been what it should have been for several months and business in general has been just as badly off as the business in this industry.

One cannot place his finger on a single valid reason why 1924 should not have been more than an average year for business. There were many reasons why it should have been a superior year in all lines but, in spite of the many favoring conditions, the year has fallen down. It has not been an absolute failure but it has been a disappointment for it has not come up to our expectations.

We have gradually become convinced that the canker which has been eating at the root of American business this year has been nothing more or less than politics. There is no other ailment to attribute the shortcomings of business to and for that reason there are a great many of us who will feel like waving the flag and cheering on November 5 not so much because this or that candidate wins as because it is all over.

It is a pity that politics can upset business and a calamity that a presidential year can interrupt progress and throw a wet blanket on our commercial interests.

Business is bound to rapidly come back to its own as soon as the results of the election are known. There will be a new tone to things almost as soon as the polls close and even before the vote from the back districts is in and American business wants to go forward now with the idea that this will be so.

It will be four years before another presidential year is here and we predict they will be fat years rather than lean ones. It would be a good idea during that period to cultivate a little more confidence and to begin to realize that nothing is more foolish than to throw up the sponge just because an election is about to take place.

Business has only itself to blame for much it has suffered during the past few months. It has been wondering what it would do if it was called upon to cross a bridge that it will probably never be called upon to cross; it has held its head down and gone along half-heartedly when it might just as well have held its head up and gone forward fearlessly.

Politicians will come and go, old policies will die and new policies will be born but American business is founded on something too substantial to be effectually rooted out even by a possible political holocaust.

CANADA'S PAPER AND PULP IMPORTS INCREASE

The exports of pulp and paper from Canada for September were valued at $11,656,466, which according to a report of the Canadian Pulp and Paper Association was an increase of $751,046 over the total for the previous month. Increases were noted in the case of both pulp and paper; larger exports of mechanical pulp, news print and kraft wrapping being mainly responsible for the increase in the total.

The exports of news print for September were valued at $7,454,239 as compared with $7,020,384 for August. The exports of wrapping paper for September were valued at $344,018 as compared with $266,774 for August. The exports of book papers for September were valued at $12,644 as compared with $16,920 for August. The exports of writing paper for September were valued at $20,048 as compared with $17,347 for August. The export of all other varieties of papers for September were valued at $301,711 as compared with $340,581 for August. The total exports of all varieties of paper for September were valued at $8,142,660 as compared with $7,662,006 for August.

The exports of mechanical pulp for September were valued at $867,964 as compared with $566,479 for August. The exports of bleached sulphite pulp for September were valued at $1,039,235 as compared with $1,060,413 for August. The exports of unbleached sulphite pulp for September were valued at $926,872 as compared with $958,847 for August. The exports of sulphate pulp for September were valued at $679,735 as compared with $647,675 for August. The exports of all varieties of pulp for September were valued at $3,513,806 as compared with $3,243,414 for August.

For the first nine months of the current year the total exports of pulp and paper were valued at $103,050,333 compared with a total of $104,636,736 for the corresponding nine months of 1923. This is a decrease of $1,586,403 but it is to be noted that the decrease took place in the exports of wood pulp while the value of the paper exported increased by nearly $5,000,000.

The export of news print for the first nine months of 1924 were valued at $68,003,040 as compared with $63,277,966 for the same period last year. The exports of wrapping paper for the first nine months of 1924 were valued at $2,525,825 as compared with $2,364,644 for the same period in 1923. The exports of book paper for the first nine months of 1924 were valued at $130,540 as compared with $259,699 for the same period in 1923. The export of writing paper for the first nine months of 1924 were valued at $138,350 as compared with $181,139 for the same period in 1923. The exports of paper board for the first nine months of 1924 were valued at $2,542,274 as compared with $2,428,464 for the same period last year. The exports of all other varieties of paper for the first nine months of 1924 were valued at $930,264 as compared with $904,709 for the same period last year. The total exports of all varieties of paper for the first nine months of 1924 were valued at $74,270,296 as compared with $69,421,621 for the same period last year.

The exports of mechanical pulp for the first nine months of 1924 were valued at $4,991,948 as compared with $8,222,122 last year, the exports of bleached sulphite pulp for the same period were valued at $9,218,067 as compared with $10,442,886 last year, of unbleached sulphite pulp $8,276,676 as compared with $9,518,146 last year, of sulphate pulp $6,293,346 as compared with $7,031,961 last year and

the total of all varieties of pulp $28,780,037 as compared with $35,215,115 last year.

Pulpwood exports in September were 96,353 cords valued at $1,057,410 compared with 104,794 cords valued at $1,173,996 exported in August.

For the first nine months of the year the total export of pulpwood amounted to 990,425 cords valued at $11,140,838 while in the corresponding months of 1923 the total was 1,159,733 cords valued at $11,091,429.

H. K. Moore, Perkin Medal Winner

The Perkin Medal for 1924 has been awarded to Hugh K. Moore, chief chemist and chemical engineer of the Brown Company, Berlin, N. H., and LaTuque, P. Q., Canada, and one of the original members of the Technical Association of the Pulp and Paper Industry. This medal was founded in commemoration of the fiftieth anniversary of the coal tar industry, and the first award was made in 1906 at the celebration of the Perkin Jubilee.

The medal is awarded annually in October for the most valuable work in applied chemistry, and is presented to the winner at the regular January meeting of the American Section of the Society of Chemical Industry. The medal committee is made up of the officers of the American Section of the Society of Chemical Industry, all past presidents of the society residing in the United States, and the officers of the American Chemical Society, the American Electrochemical Society, the American Institute of Chemical Engineers, and the American Section of the Société de Chimie Industrielle. Hugh K. Moore was proposed as a candidate for the Perkin Medal by the American Institute of Chemical Engineers and the American Section of the Society of Chemical Industry in competition with other candidates of these organizations and the American Electrochemical Society.

Dr. Moore's chemical education was obtained at the Massachusetts Institute of Technology. He was recently made an honorary Doctor of Science by the University of Maine.

Dr. Moore has been connected with the Brown Company, originally the Burgess Sulphite Fibre Company, since 1903. Having been previously connected with the American Electrolytic Company as chemist and chemical engineer, he is widely known for his work in the development of the electrolytic process of producing caustic soda and chlorine, and is the inventor of the Moore and Allen cell which is in use to this day.

As stated, Dr. Moore has been engaged in the pulp and paper industry on the chemical engineering side for the past twenty-one years. Some revolutionary improvements in the production of caustic soda and chlorine are credited to him, and he had done valuable work in the recovery of by-products of the sulphate, sulphite and soda process of manufacturing pulp, in which he has always had the liberal encouragement of the Brown Company.

The esteem in which Dr. Moore is held in his home community is seen in his election as a member of the State Assembly. He takes an active part in Republican politics and is now a candidate for election to the New Hampshire State Senate with every prospect of election.

Milton E. Marcuse Renominated

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., October 29, 1924—Milton E. Marcuse, president of the Bedford Pulp and Paper Company, of Richmond, Va., has been nominated to succeed himself as a director of the Chamber of Commerce of the United States. The nomination was made last week at the mid-year meeting of the Eastern Division of the National Chamber.

The election will be held in this city at the next annual meeting in the spring.

No Need for More Kraft Mills in South

NEW ORLEANS, La., October 27, 1924.

Editor PAPER TRADE JOURNAL:—

In his letter published in your issue of October 16, I think that Colonel William Polk of Alexandria, La., has brought out well his points as to the possibilities for paper making in the South. However, I desire to sound a warning, based on economic facts, against the present further development of Kraft paper manufacturing in the South.

Within the last sixty days, new machines have commenced operations that will increase the production of Kraft paper in the South to 400 tons per day, over a previous production of less than 250 tons, or more than 60 per cent. In addition, there is under construction at Bastrop, La., a mill which is accredited with a capacity of 50 tons per day, so that, with it in operation, the production of Kraft in the South will have nearly doubled within a few months time.

The paper trade knows that the Kraft market was not good before this new production came in; it will take determined effort to make it hold its own now that the new and prospective tonnage doubles the task. The Southern Kraft Manufacturers' Association has opened a central office in New Orleans to try to take care of this greatly increased production, and will bend all its energies toward extending the market for Southern Kraft. But it cannot meet the task of taking care of a production that increases too rapidly for any available markets to absorb it, so I say, in all seriousness, to those who are promoting, or thinking of investing money in, new Kraft mills in the South—Don't! Not now.

Over-production means inevitable loss to the industry, and the new manufacturer is likely to get more than his share of it.

Very truly yours,

C. E. DOBSON,
Secretary, Southern Kraft Manufacturers Association.

Forestry Program Committee Meets

The National Forestry Program Committee held a meeting at the Canadian Club last Friday at which further plans were made for continuance of the work which has been carried on for the past four years. Consideration was also given to various forestry legislative matters. Every member of the committee was either present or sent a written communication expressing their opinions on some of the policies discussed. The committee is composed of the following:

R. S. Kellogg, chairman; Warren B. Bullock, secretary; E. T. Allen, Western Forestry and Conservation Association; Philip W. Ayres, society for Protection New Hampshire Forests; Elbert H. Baker, American Newspaper Publishers Association; Wilson Compton, National Lumber Manufacturers Association; Hugh P. Baker, American Paper and Pulp Association; Ovid M. Butler, American Forestry Association; John Foley, Association of Wood Using Industries; William L. Hall, Central States Forestry League; Charles Lathrop Pack, American Tree Association.

Fire Destroys Paper Stock at Robert Gair Mill

PIERMONT, N. Y., October 27, 1924.—Fire which started in some unknown manner was discovered Friday night in the Piermont mill of the Robert Gair Company. The blaze apparently originated in the waste paper stock and great difficulty was encountered in controlling it. By Saturday morning, however, the fire was under control and had been confined to the stock. The equipment was not damaged and it was expected to resume operations at the mill today. The Gair Company was fortunate in having a sufficient amount of paper stock in transit to tide them over their difficulty so that the fire will not result in any serious interruption. The officials of the company visited Piermont today but had no statement to make as to the amount of damage.

CONVENTION OF CANADIAN PAPER TRADE ASSOCIATION

Session Held at Toronto Was Notable One in Many Respects and Spirit of Optimism Prevailed—R. I. Finlay of United Paper Mills Elected President—Resolutions Concerning Paper Distribution and Forest Protection Adopted—Association Adopts Uniform List of Trade Customs and Decides to Discontinue "The Long Price List"—Annual Dinner Program Greatly Enjoyed.

[FROM OUR REGULAR CORRESPONDENT.]

TORONTO, Canada, October 27, 1924.—The seventh annual convention of the Canadian Paper Trade Association, which was held at the King Edward hotel, Toronto, on October 21 and 22, was well attended and most fruitful in outcome. The gathering was representative in every respect and the proceedings were marked by harmony and enthusiasm. The results of the past year were reviewed and a hopeful outlook expressed concerning business conditions during 1924.

The feeling of the gathering might be summed up in the words of one delegate from the east, who said that 1924 business, while not as flourishing as they would all like to see it, had held its own and the volume of trade had been fairly well sustained. If it were not for the ever increasing expense of the overhead cost, without the proportionate profit, it would not be long until the members could gain their favored position of pre-war days. He referred particularly to such expense as constantly increasing taxes of various kinds, which are not, up to the present, provided for in the usual profits and consequently cut down the net results.

John F. Ellis, of Toronto, Honorary President of the Association and the dean of the paper trade in the Dominion, welcomed the visitors and briefly referred to the results of the past year.

The President's Address

J. B. Larkin of the Federal Paper Company, Montreal, president of the association, in his annual address, said that business conditions of the past year had not been of the brightest but he felt sure they could look forward to a much improved situation during the coming winter months. From what he could learn the manufacturing costs of the Canadian paper mills are steadily mounting, and it was only reasonable to expect that the present prices will, at least, be maintained.

Continuing, Mr. Larkin said: "In the face of the past depression, all our members have survived the condition in a very creditable manner, which should make us all the stronger for our association, and we certainly owe a debt of gratitude to the founders of the Canadian Paper Trade Association seven years ago.

"During the past year, your Mills Relations Committee were not called upon to adjust many serious questions with the mills, which would go to show that both Associations are working in closer harmony; also that the mills are gradually realizing the proper outlet for their product is through the jobber. There are many questions which can still be adjusted and I feel sure that our committee will receive a reasonable hearing from the Canadian mills.

"At our last annual meeting President George Wilson, of Winnipeg, spoke about the campaign in the United States for a general standardization of papers. This question has come to Canada and I understand that a conference between the Canadian mills and Master Printers has already taken place and a certain amount of ground work done. We can expect, at almost any time, to be brought into these conferences, which should result in an improved condition in the merchandise of paper by the reduction of the number of sizes, which we will be called upon to handle. I would suggest to the new Executive that the work be started immediately on a revised list of classification, as the one at present in use appears to be antiquated."

Reports from the different sections were then presented by C. J. Kay, Vancouver, for British Columbia; A. C. Hunt, Winnipeg, for the Prairie Provinces; Fred W. Halls, Toronto, for Ontario; T. Havill, Montreal, for Quebec and E. A. Schofield, St. John, N. B., for the Maritime section.

Secretary Martin Sums Up Work

N. L. Martin of Toronto, general secretary of the Association, in his report said that every legitimate wholesale dealer of fine papers in Canada, with one exception, was enrolled in the membership. In Ontario, Quebec and the Prairie Provinces many sectional meetings had been held at which the real work of the Association had been done. One important matter dealt with during the year had been the settlement of what is commonly called "the two and three ton arrangement" with the mills. This principle is at the present time on trial and it is perhaps as yet too early to state as to whether it has justified its existence.

"After all," he said, the most important subject which the Canadian wholesale paper merchant has to consider is his status in the business community. His ideal is that, through him, and through him only, should be distributed the product of the paper mill. It can scarcely be successfully argued that this ideal is an unreasonable one, or one which a wholesale paper merchant can not hope to attain. Beyond question the position of the wholesale paper merchant has become better defined through the co-operative efforts of the Association, I trust that we are within the near future about to take at least, a step in the direction of a goal, which we have been aiming for ever since the Association was organized—and that is, our recognition as the medium between the mill and the printers.

"On the whole the work of the Association has been free from friction and difficulty. The trade depression which we are now passing through, and which has had an adverse effect on all lines of business, has been felt by the wholesale paper merchant and reflected in the total of his sales. This had added, in some quarters, to the keenness of the competition. If the existence of an Association is ever to be of value to its members it should be doubly so in times like these. Those who are in the best position to judge entertain the belief that we have reached the turn of the road and that better times are just ahead.

"That our paper industry has been of prime importance in the trade of Canada cannot be denied. As Canadians we are justly proud of the fact that the Canadian dollar is running neck and neck with the dollar of our American friends as having the highest value of any money in the world."

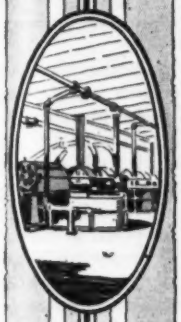
Some Features of the Gathering

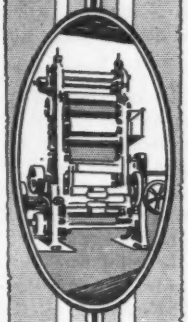
N. A. Schoenbacher of New York, who is head of the Bureau of Research of the National Paper Trade Association, gave several timely and thoughtful addresses during the convention. He spoke on an analysis of costs as applied to the paper business and of how the United States paper merchant had become the legitimate and natural distributor of the products of the mills. He pointed out that the records of the United Typothetæ of America showed that the average stock of paper carried by a printer was only one and one-half per cent of his annual turnover. Of the average orders received and sent out by a paper merchant ninety-three per cent consisted of less than case lots and forty-one and one-half per cent of all orders were for under five dollars in amount.

L. P. Turgeon, of Quebec city, spoke on "Net Profits on Sales," which contained many valuable pointers.

The Association adopted a uniform list of trade customs and among other important matters decided to discontinue the "long price list," which has been in effect for the past two years. Net price lists will be reverted to. The question of the "long price list" came in for much discussion but many complaints have been heard against it particularly from printers in small towns and the job-

Cut your Operating Costs by Proper Lubrication

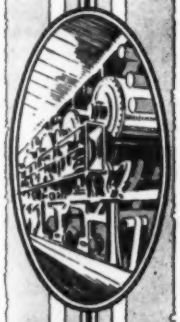


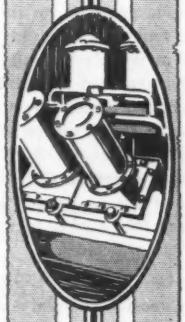


YOU know that at every point throughout your plant the matter of lubrication is of great importance. In many instances it is the deciding factor between efficient and inefficient operation. Proper lubrication is a positive essential to efficient operation.

Frequently, to bring about proper lubrication, a careful investigation by experts is necessary. They study the mechanical construction and operation of each machine, the speed at which it operates, pressure maintained, heat encountered and many other conditions which must be considered in order to secure proper lubrication.

The technical staff of the Standard Oil Company (Indiana) have for years worked between our refineries and the varied industries of the middle west. They have assisted in developing the full line of lubricants needed in the industrial world, which, when used in the right place and right manner insure proper lubrication. This, in turn means greater operating efficiency and lower operating costs.





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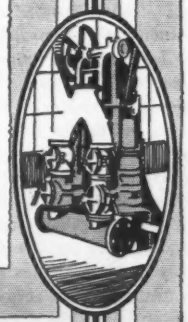
are of the highest quality and are always uniform. With them, the work of our lubricating engineers is not a matter of experimentation. They are working with known quantities and the principles which guide them form an exact science, the application of which produces results which may be definitely foretold.

The services of these lubricating engineers are available at all times. Without cost to you and without placing you under any obligation to us, they will make a survey of your plant on which they will base their recommendations for correct lubrication. This service will, we are confident, save money for you just as like service which we have rendered many others has saved money for them.

Phone or wire our nearest branch office today. The sooner you act, the sooner you'll reap the benefits.



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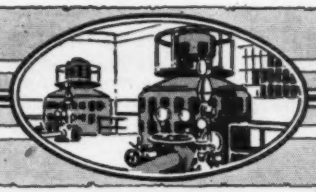
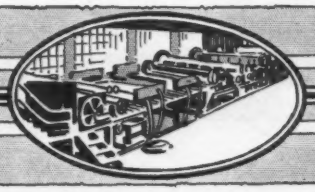
Quincy	Wichita	S. DAKOTA	Fargo	Mankato	
		Huron	Minot	Minneapolis	





bers themselves are not enthusiastic over the extra work it entails and the perplexities which arise from time to time.

Election of Officers

The following officers were elected for the coming year:

Honorary President, J. F. Ellis, Barber-Ellis, Toronto, (re-elected).

President, R. I. Finlay, United Paper Mills, Toronto.

First Vice President, E. A. Schofield, Schofield Paper Company, St. John, N. B.

Second Vice President, A. C. Hunt, John Martin Paper Company, Winnipeg.

Treasurer, E. S. Munroe, Wilson, Munroe Company, Toronto, (re-elected).

Secretary, N. L. Martin, Toronto, (re-elected).

It is likely that the 1925 convention will be held in Montreal, final decision being left with the new Executive.

Paper Distribution and Forest Protection

The following resolution was adopted:—That we unanimously affirm our conviction that as paper merchants we are essential in the process of distribution of paper in Canada and that, individually and as an association, we definitely set ourselves the task of bringing about on the part of the manufacturers due and proper recognition of our function and the ultimate establishment of the status of the paper merchants as sales agents and distributors of the products of the mills, with due regard to such exceptions as are generally conceded and provided for.

The question will be taken up by the new executive with the mills for consideration.

Another resolution carried was:—Resolved that this annual convention of the wholesale paper merchants of Canada regrets the continuance of the woeful waste of the timber resources of the country by the destructive ravages of fire; we recognize that Canada possesses no small percentage of the world supply of standing timber, which put to its proper use in the world work, will add immensely to our national wealth, and we wish to put on record our unqualified approval of the steps which are being taken by the provincial legislatures to prevent this tragic waste. We are pleased tc note the great progress which has been made and we express the hope that no effort will be spared to continue the present protective program and enlarge its scope until the fire loss in our forests has been reduced to the minimum; and be it further resolved that a copy of this resolution be sent to the premiers of the various provinces.

Annual Dinner Was Enjoyed

A most successful and enjoyable banquet was held on the evening of October 21 in the Yellow Room of the King Edward Hotel, when the visiting members were the guests of the Ontario members of the Association. J. B. Larkin, of Montreal, presided and under his direction everything passed off in an admirable manner. There were only four toasts on the list:—"His Majesty The King," "The Canadian Pulp and Paper Association," "The Printing Industry in Canada" and "Our Guests," all of which were suitably honored and enthusiastically responded to.

George Carruthers, President of the Canadian Pulp and Paper Association, spoke of the remarkable growth of the industry in Canada during the last ten years and the need of closer co-operation between the paper merchants of the Dominion and the paper manufacturers. He added that it was his belief that the growing export of pulp and paper to the United States had more influence than any other single factor in maintaining a favorable trade balance and in keeping the Canadian dollar in its commanding position in the money markets of the world.

N. A. Schoenbucker, of New York, who is head of the Bureau of Research of the National Paper Trade Association of the United States, was among those who replied to the toast of "Our Guests." This was proposed by Albert Brown. Mr. Schoenbucher congratulated the Canadian Paper Trade Association on its progress and prophesied for it an increasing sphere of usefulness and prosperity. He referred to the importance of constantly knowing costs, and keeping close tab on overhead expenses in these days of keen competition and small lot orders.

C. J. Kay, of Vancouver, former President of the Canadian Paper Trade Association, conveyed greetings from the West and referred to trade conditions in that part of the country which he said, owing to the bountiful harvests, were showing considerable improvement.

Major F. M. Brown, President of the Toronto Typothetæ, replied to the toast to the "Printing Industry in Canada" and made a strong plea for the retention of the long price list which had met with much favor in local printing circles.

There was an entertaining program of song, speech and story and the highly delightful function was closed with the singing of the National Anthem.

A. C. Hunt, of Winnipeg, was called home during the dinner owing to the illness of his father and appreciation was expressed of his work in committee and other activities of the organization.

Richard I. Finlay, the newly-elected president of the Canadian Paper Trade Association, is widely known in wholesale paper circles and has always been an energetic worker for the Association. Last year he ably filled the position of first vice-president. He is head of the United Paper Mills, which he organized, in company with E. L. Young in 1909 and the firm became incorporated in 1910.

Mr. Finlay was born in Lawrence, Mass., forty-one years ago, where his father, the late William G. Finlay, was superintendent of the Merrimac Paper Company. In 1900 the family came to Canada, Mr. Finlay, Sr., being appointed superintendent of the Kinleith Paper Mills, St. Catharines. Afterwards he became associated with the Montrose Paper Mills, (now a unit of the Provincial Paper Mills Company), Thorold, of which he was manager until his death in 1907.

R. I. Finlay entered the Montrose Paper Mills and learned every branch of the paper-making art and succeeded his father as head of the organization, which position he occupied for two years until coming to Toronto. Mr. Finlay has built up a large business and in 1919 the United Paper Mills opened a branch in Hamilton. The firm specializes in all kinds of flat papers, cover papers, etc. The new President is an enthusiastic Kiwanian and an ardent motorist. He spends his summers at the pretty town of Oakville, some eighteen miles west of Toronto. Under his direction the Canadian Paper Trade Association should enjoy a year of continued expansion and prosperity.

Electric Portable Elevator Roll Paper Tructor

An electric elevator tructor for handling, transporting, and stacking news print or roll paper stock has just been put out by the Elwell-Parker Electric Company of Cleveland, Ohio.

This tructor picks up roll paper laying on the floor or standing on end, takes load to desired location, and stacks roll either in a horizontal position or on end up to a raised height of 6 feet. With this unit roll paper stock can be stacked on end two high or three high if laid on side, thus, saving much valuable storage space and handling all transporting and stacking operations in one cycle with the use of only one operator.

The unit consists of an elevator tructor with a revolving cradle at the end of the elevating platform for handling the load. The roll is raised or lowered by raising or lowering the platform while the cradle can be revolved to any position from the horizontal to the vertical by means of the additional hoisting unit.

The two hoisting units for operating the elevator and for revolving the cradle are standardized so parts are interchangeable and all power for the equipment is supplied from one central storage battery with individual controllers for the lifting, revolving, and driving mechanisms.

MORSE SILENT CHAIN DRIVES

Morse Silent Chains driving beaters in a well-known bag and paper company.

Meeting exacting requirements with 98.6% efficiency

MORSE SILENT CHAIN DRIVES have many features that contribute largely to the efficiency and convenience of operation of all machines in the paper mill.

They operate over short or long centers, as most desirable, at 98.6% sustained efficiency, are elastic and flexible, run slack without initial tension, and excessive journal friction, and are not affected by heat, cold or moisture.

The Morse Drive absorbs or cushions the shocks and jars due to starting, stopping and sudden overloads, and therefore effectively protects bearings, motors, and other rotating parts when foreign matter is encountered in the beater rolls.

There is no unnecessary loss of power as with gears, which wear with age; or loss of power or production as with a slipping belt. Beaters and other machines can be operated at a uniform rate, and high quality of paper maintained.

MORSE CHAIN CO., ITHACA, N. Y.

There is a Morse Engineer near you

ATLANTA, GA.
702 Candler Bldg., Earl F. Scott & Co.
BALTIMORE, MD.....1402 Lexington Bldg.
BOSTON, MASS.....141 Milk Street
CHARLOTTE, N. C..Room 803, 112 West Adams St.
CHICAGO, ILL.....Merchants Loan & Trust Bldg.
CLEVELAND, OHIO.....421 Engineers Bldg.
DENVER, COLO.....211 Ideal Bldg.
DETROIT, MICH.....7001 Central Avenue
NEW YORK CITY....Room 1871, 50 Church Street
MINNEAPOLIS, MINN.
413 3d St., S., Strong-Scott Mfg. Co.
PHILADELPHIA, PA.Room 803, Peoples Bank Bldg.
PITTSBURGH, PA.....Westinghouse Bldg.
SAN FRANCISCO, CAL.....Monadnock Bldg.
ST. LOUIS, MO.
Railway Exchange Bldg., Morse Chain Co.
TORONTO, ONT., CAN.....Strong-Scott Mfg. Co.
WINNIPEG, MAN., CAN.
Dufferin St., Strong-Scott Mfg. Co.

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SUPERINTENDENTS MEET AT WOODRUFF, WATERTOWN

William Bridges, of the Defiance Paper Co., Is Elected Chairman of the Northern New York Division of the American Pulp and Paper Mill Superintendents' Association—Proposal Made That the Division Add Equipment to the Pulp and Paper Section of the School of Forestry at Syracuse University—George W. Sisson, Jr., of Racquette River Paper Co., Makes Address.

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., October 30, 1924.—The annual fall meeting of the Northern New York division of the American Pulp and Paper Mill Superintendents' Association was held here in the Hotel Woodruff, Saturday, October 25, afternoon and evening. The afternoon meeting was called to order by chairman, Homer Stafford, at 2 o'clock and the evening session convened at 6:30 o'clock.

William Bridges Elected Chairman

William Bridges of the Defiance Paper Company of Niagara Falls, N. Y., was elected chairman to succeed Mr. Stafford, superintendent of the Knowlton Brothers mills of this city. Harry E. Rockwood superintendent of the Champion Paper Company of Carthage was elected vice-president and Fred J. Rooney of the Upson Board Company of Lockpoort was elected secretary.

A proposal was brought up that the Northern New York division add equipment to the pulp and paper section of the school of forestry at Syracuse, N. Y. University and this will be acted upon at a future meeting. The proposal specified that the faculty of the school be allowed to designate what equipment should be added.

M. J. Argy of Niagara Falls, general chairman of the national convention to be held there June 5, 6, 7, 1925, invited the members to attend, outlining the plans for the convention. There were about 90 members of the division present. Speeches were given at the afternoon session and a dinner was served at 6.30. The dinner was followed by the election of officers and more speeches.

Address by George W. Sisson

A stirring address was given by George W. Sisson, president of the Racquette River Paper company of Potsdam and president of the American Pulp and Paper Association during the evening session.

"The very foundations of our American industrial system is challenged this day. Demagogues are chasing up and down the country, declaring that everything is wrong," was his introduction. Mr. Sisson's address was followed by a keen review of the political and economical situation of the country by Isaac L. Hunt, president of the Watertown Savings Bank. Homer Stafford, retiring chairman of the division introduced Attorney William K. Mott, as toastmaster. The newly elected officers also gave short talks.

Following his brief introduction in which he said he had confidence in the organization he was addressing as a stabilizing influence in the paper industries Mr. Sisson launched into a review of the vital influences in business today.

"What I ask you," he said, "is this vital influence in business today? What brings new undertakings, new concerns into existence? What is it that, lacking in business, makes by its absence, death inevitable?

"One thing it certainly is not: It is not labor. From the definition it is not so, historically it is not so, in the nature of things it can not be so. Whatever modicum of truth, then, there is in the statement that 'all wealth is created by labor,' let us bear in mind two indisputable things: Labor is sometimes wholly, and always partly convertible into machinery; and secondly, while no business ever came into existence except in obedience to a vital principle, that vital principle never arises out of the sole initiative of labor.

"It is unfortunate that the study and teaching of economics is largely divorced from practical experience of, and responsibility for, economic operations. The result is that economists are not men of affairs, and men of affairs are not economists. They are like two persons, neither does justice to the point of view of the other, because there is no common ground by which the conflicting arguments can be judged.

"No, the vital principle of business is a combination in a single individual, or a group of individuals of foresight, knowledge, organization, power, courage and the possession or command of capital. When these are united so that they can be made to work together in obedience to a single will, then you have, and only then, the vital principle which explains every business today.

"It is exactly the same thing whether the business in question is the United States Steel Corporation or a newsboy's stand under the stairway of an elevated railway; whether it is the Woolworth Company that buys articles at four cents and sells them for five, or whether it is an artist that paints pictures with materials that cost a trifle but when finished sell for thousands of dollars. In each case it is the same thing; it is the combination in one person or group of persons, of the qualities named.

A Familiar Truth

"This it seems to me is a truth with which all of us business men have been familiar for a lifetime. Oddly enough it is a truth on which the political economists have been almost, if not entirely, silent. It is a truth which, if it is a truth, disposes once and for all the whole Socialists contention that the state can take the place of the private capitalists. The state can not take his place for obvious reasons. For instance, the state cannot risk its own capital —because it is insensible to loss. Yet it is the element of risk that determines the whole operation.

"If this truth could be brought home there should be no difficulty in getting the honest thinking people whether workmen or in public life to see that the promoters and managers of large business are neither pirates nor robbers; that they are not, just because of their position in the industrial scheme, the oppressors of the less fortunate nor the 'grinders of the face of the poor.' They are truly the creators of all those things that distinguish the life of the working man of today from what it was 50 or 100 years ago. They are the creators of national prosperity, the originators of every form of material progress the world has ever known.

Kalbfleisch Corp. to Open Plant Soon

KALAMAZOO, Mich., October 23, 1924.—The Kalbfleisch Corporation expects to be able to begin production in its Kalamazoo plant within 30 to 60 days at the most according to L. R. Verdon, secretary and general manager of the Michigan corporation. Since taking over the property of the Michigan Silo Company on Race street, many changes have been made in that structure. The south building has been considerably enlarged and the roof raised. In other portions of the building it has been necessary to move several partitions, laying out the floor space to accommodate the new industry.

A large amount of new equipment is being installed, including bucket and belt hoists, cookers, mixers and several large storage tanks. Methods employed by this concern are patented and not heralded broadcast. Mr. Verdon said that the product of the local plant will be confined to rosin size and pulp filler.

Fred R. Aldrich, formerly assistant superintendent of the Kalbfleisch Corporation's plant at Erie, Pa., has been named superintendent of the Kalamazoo division. He is now on the job, assisting John F. Fraderson, New York, general superintendent, in getting the plant started. L. R. Verdon has been named secretary and general manager. He will also continue to operate the Paper Mills Supply Company, this concern to act as selling organization for the Kalbfleisch products in the west.

At Monroe, La.

For $1.25 You Get As Much Fuel in

GAS

As You Get in Coal for $12.00

Manufacturers of brown paper will find at Monroe, Louisiana, an abundance of cheap fuel, the necessary raw material and many other things which favor profitable manufacturing.

Monroe is right on the edge of the country's greatest known natural gas field, which furnishes a high-quality, non-poisonous gas, with a heating value of approximately 1,000 B.T.U. Manufacturers here are now able to make long-time contracts for fuel gas at 5c to 8c per thousand cubic feet.

And Monroe has extensive lumbering interests in and near the town; therefore, plentiful supplies of waste wood and large areas of second growth pine nearby are available for pulp and paper making.

Other Inducements Offered to Paper Manufacturers at Monroe

1.—LABOR—abundant, low-cost and contented.
2.—TRANSPORTATION—efficient trunk line railroads; and year-round water traffic on the Ouichita River, connecting with world markets through New Orleans.
3.—BUILDING MATERIALS of all kinds at moderate cost—lumber, brick, tile, clay, gravel, sand, etc.
4.—MILD CLIMATE—makes living cheaper and more pleasant.

Let us tell you more about what Monroe offers Paper Manufacturers. Write for illustrated booklet, "The City With a Big Future and What It Offers You." Address:

Monroe Chamber of Commerce
Monroe, La.

Monroe Power House which uses natural gas for fuel.

It Costs Less To Manufacture in Monroe

PHILADELPHIA TRADE SLOW IN GETTING BACK TO NORMAL

Coarse Paper Division Shows Best Improvement While Fine Papers are Holding Up Fairly Well—Wrapping Paper Men Meet to Hear Reports From National Association Meeting in Chicago—Rag Division of Waste Association Perfects Organization and Makes Plans for Functioning—Veteran Head of Charles Beck Co. Visits Headquarters on Its Sixtieth Anniversary.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., October 27, 1924.—Although the general trading in all grades of paper is considerably above the market of the past fortnight, it still is lacking in the volume record of a normal Fall season. While the greatest improvement is noted in the coarse paper division, the fine paper division is holding fairly well to the levels of the previous week in those lines of books, bonds and coated papers consumed by the printing and publishing trade while the writing papers show a tendency to lag.

While orders for fine papers are holding up to the betterment attained the previous week the dealers maintain that there is not enough business to warrant the stocking of warehouses for larger tonnage for the near future demands and they are cautiously buying from the mills preferring to wait until the political situation has been definitly settled in the November election. Prices in the fine paper market, both among the distributing houses and the mills are holding steadier.

Coarse Papers On Upgrade

The coarse paper dealers report that there is a decided betterment in all the grades. Prices, however, are prone to fluctuate so rapidly that the distributors hardly know at what quotations the various commodities may be made from one day to another. The mills still are offering their wares at very much reduced prices, each outbidding the other in discounts, and this keenness of competition is responsible for the demoralizing of the market in so far as prices are concerned. Distributors say they are holding back on their mill orders for the reason that they are not willing to stock up with the present market offerings in anticipation of securing better values as the competition wages. They state that there is no fixed wrapping paper or Kraft market and not likely to be until the mills cease their competitive bidding for business. As for the distributors who are enjoying the more active markets for their course papers the business is secured only after hard work and much persuasion. Most of the buying is for the department stores and holiday requirements.

Coarse Paper Dealers Meet

So keenly interested in the paper world and the future outlook for the coarse paper business are the members of the local Wrapping Paper Division of the Philadelphia Paper Trade Association that the entire body deserted their desks to be present at the Thursday meeting of the Division to hear the report of the semi-annual gathering of the National Association held in Chicago the previous week. The report of the National Association gathering was read by Harvey N. Hearl, delegate from the Philadelphia organization to the semi-annual meeting and Vice President of the local association. After reading the typewritten resume of the national body's transaction at the various conferences and meetings pertaining to the Wrapping Paper Division, Vice President Hearl expressed the various opinions of the dealers and manufacturers from all parts of the country on the future trend of business and prospects. Expressing the optimism of the trade leaders and their survey of the industry he mentioned that the wrapping paper businses of the present season is far ahead of that of last Spring, showing a firmer tone with a steadily increasing volume in the shipment of coarse papers from the mills and into the channels of the consuming trade. The interesting talk of vice-president Hearl was made in the course of the dinner served at the Bourse Restaurant with Willard W. Seary, of the D. L. Ward Company, Chairman of the meeting.

Rag Division Organized

The entire membership of the Rag Division of the newly organized Philadelphia Waste Merchants met in a combined business and social session at the Hotel Lorraine on Thursday evening of last week for the purpose of perfecting the plans for the function of that Division and the development of its trade policies. There were ten members present, comprising the full representation of the wholesale rag dealers associated with the Waste Association. around the dinner table the members discussed its trade plans and then, after Secretary William J. McGarity, head of the Penn Paper and Stock Company, as presiding officer, gave a brief summary of the aims of the Division, there was elected a chairman and a committee to arrange for the perfecting of a schedule for the rating of rags and the packing and sorting of this grade of stock for the best service to the mills and the dealers. Secretary William J. McGarity, of the Waste Association was elected Chairman of the Division, while these were selected to serve on the committee: I. Beichman, Beichman Brothers; John Murphy, P. DeSanti, A. Massington, Daniel I. Murphy Company, and Sam Imber. Those who were present at the meeting were P. DeSanti, P. DeSanti & Co.; A. Massington, A. Massington & Co.; A. Moskowitz and Sam Imber, H. Feldman Company; George De Innel, John J. O'Leary, Daniel I. Murphy Company; Charles Dennenberg, S. Birkenstein Company and William J. McGarity Sr., William J. McGarity, Jr., and John J. Costello, Penn Paper and Stock Company. This is the first Division of the Waste Association to complete its organization with two other sections still pending the selection of a chairman and rules for the conduct of business in the various branches of the industry to which they belong. The other two Divisions are the paper Stock and Metal and Waste Material Divisions and these will meet shortly to perfect their plans.

Beck Company's Sixtieth Anniversary

In commemoration of the sixtieth anniversary of the Charles Beck Company, the veteran head of the firm, Charles Beck, who is now past the four score and seven milestone of his life, paid a personal friendly visit to the younger generation of officials, executives and employees at headquarters, 609 Chestnut Street on October 10, the anniversary of day upon which the doors of the firm were thrown open for business. The passing of the sixth decade of the business history of the firm was marked by the renewal of old time friendships between the genial octogenarian and the firm's present business family and its customers. Mr. Beck spent the day making the rounds of the offices and was warmly welcomed by those who have helped build the successful paper concern in cooperation with the founder and his sons, Leon and Charles J. Beck, the present active heads of the firm and his nephew, Andrew Simon, also associated in the company. A daughter, Miss Hortense Beck, who is actively engaged in the business, also greeted her father and joined in conducting him through the various departments where customer, employer and employee united in extending congratulations to Mr. Beck.

The Beck Company was organized in 1864 in the building at 215 N. 3rd Street and in 1866, shortly after the Civil War was obliged to seek larger quarters at 123 S. 3rd Street and then began a large importation business of German papers for box makers, printers, and toy manufacturing, later branching into the machinery supply business and catering to the paper consuming trade. So extensive had become the business that the large build-

(*Continued on page* 104)

Ledger Accounts in String

Five hundred years ago the ruling Incas of Peru required their subjects to deposit all grain in community warehouses. From these it was reissued as needed and the government took its percentage as a tax. Printed income tax forms and business receipts on paper were unknown, but each tax-paying citizen was recorded on a string suited to his station in life.

Rather crude and uncertain, the ways the Peruvians had of recording their transactions years before the three little caravels of Columbus made their painful way to the West Indies. The advantages of our civilization were impossible under such circumstances.

Our higher standard of living could not be maintained today if it were not for generous quantities of paper and efficiently operated printing presses.

Hammermill Paper Company
Erie, Pennsylvania

SOUTHERN KRAFT PAPER MEN CONVENE AT NEW ORLEANS

Nine Out of Twelve Kraft Paper Mills in the South Represented at the Meeting—Over-Production of Kraft Paper in the South Is Among Chief Topics Discussed—Activities of Uninformed Writers Encouraging Building of Additional Mill in the South Frowned On—Central Offices Established in New Orleans for Trade Extension Work—To Meet in New York Early in February.

NEW ORLEANS, La., October 27, 1924.—The Southern Kraft Manufacturers' Association which embraces the mills manufacturing pulp, pasteboard and paper from the Southern pine, met Monday of last week at the Roosevelt Hotel and prolonged their session until Tuesday. H. W. Ellerson, president of the Albemarle Paper Manufacturing Company of Richmond, Va., the President of the Association, presided. A. C. Goodyear, president of the Bogalusa Paper Company, vice president of the Association, was not able to be present, but his place was filled by Colonel W. H. Sullivan of Bogalusa, vice president of the Bogalusa Paper Company. There were present delegates from Richmond, Va., West Point, Va., Roanoke Rapids, N. C., Orange, Tex., Monroe, La., Bogalusa, and Braithwaite, La. Nine out of the twelve mills in the South were represented at the meeting.

Over-Production in South

The chief problem at the meeting was the over-production of Kraft paper in the South. It is bending its energies toward finding markets that will absorb all the paper now being manufactured from Southern pine pulp. Its statistics show that during the last sixty days, new mills or additions to present capacity have commenced operations that will increase the production of Southern Kraft paper one hundred and fifty tons per day over a previous production of less than 250 tons per day, or more than 60 per cent. The market was already in an uncertain condition, owing to the general slowness of business movement, to the competition of Northern papers which find their regular markets slack, and to the cheap Kraft from Europe, which economic conditions there force on the American market at delivered prices, all charges paid, sometimes less than the American product must bring.

Trade Extension Work

To meet this condition the Association has established a central office in New Orleans for trade extension work. Also, at its meetings, by individual help and counsel from its members, it is devoting the major portion of its attention to the same end.

An officer of the association said: "Very many of the consumers in the South have done well by Southern Kraft, but they can do no more, and there is a multitude who have done nothing, and could do much. Thousands of tons of imported papers, of Northern sulphites and Kraft papers, are being sold throughout the South and are being used where Southern kraft would answer as well, and, in most instances, better. For Southern kraft is good, strong, tough, flexible, long fibered paper, one of the best papers in the world for wrapping, for bags, for car lining, and for every use where strength, toughness and flexibility are required. It can be used in lighter weight than most papers, and quantity for quantity, will cost less than most. The man who uses it is doing the manufacturer no more of a favor than he is doing himself.

"The authorities of the Association, bending every effort as they are to meet the flood of surplus Kraft paper now pouring out, are concerned over the activities of various writers and promoters, whose enthusiasm sometimes runs away with their judgment of economic facts.

"Those enthusiastic ones are urging the establishment of new plants and working up civic enthusiasm in various localities toward the building of paper mills, without giving calm consideration to economic facts which call loudly for a halt in the production of Kraft paper until the present surplus can be taken care of. Those who are about to put money into projected paper mills are warned to make a careful study of present conditions in the kraft paper industry before they proceed further at the present time. There is to be considered, also, the fact that an efficient mill costs, to build and equip, about $50,000, for each ton of paper produced per day, or a total of about $2,500,000 for a 50 ton mill. The future may show rosier prospects—that is the end toward which the association is working.

"There is one thing that every individual in the South who uses paper can do, and ought to do—investigate Southern Kraft paper before buying any other, and, when he does buy, to see that he gets Southern Kraft. It is a paper that he can depend on."

To Make Weekly Reports

The members of the Association agreed to report weekly, the prices received for kraft during the preceding week, which information will be digested by the secretary, and an average price for the period reported to the members and to the public through the newspapers. It was thought wise to do this in order to put Southern kraft on the same standard basis of published quotation that prevails with other commodities.

An interesting report was received from Elis Olsson of the Chesapeake Corporation, West Point, Va., who recently returned from a trip to Sweden, and gave an interesting account of the Swedish methods of manufacture. The secretary was authorized to proceed with certain trade extension plans which involve the circularization of certain industries, with a view of extending the use of Southern kraft.

To Meet Next in New York

It was decided that the next meeting should be held at the Waldorf-Astoria Hotel, New York City, early in February, 1925, coinciding with the meetings of the American Paper and Pulp Association.

PHILADELPHIA TRADE SLOW

(*Continued from page* 102)

ing at 16 S. 6th was necessitated in 1869 and a decade later the present five story home was acquired.

Paper Man Dies in Street

A man believed to be Frederick H. Pilon, Vice President of the Albany Card and Paper Manufacturing Company. of Albany, N. Y., died of heart failure on the street here last Tuesday. Mr. Pilon was walking along 13th Street near Chestnut when he was seized with a heart attack dying before the hospital was reached. Letters in the pocket of his coat gave clue to his identity and his home address at 671 Western Avenue, Albany, was communicated with by the hospital authorities. He was about 65 years of age.

Trade News Notes.

An announcement has been made to the trade that P. H. Glatfelter of Spring Grove, Pa. has reduced the price of book papers and cheaper grades of writings one-half cent per pound within recent days.

Plans for the expansion of the paper specialty department of S. Walter Inc., 144 N. 5th Street are now being perfected. Simon Walter, head of the firm, announces that this department is to be broadly developed and an increased sales organization devoted to this particular division of the business instituted before the first of the year. The firm will feature the sale of Moth Proof Garment Bags, machine glazed bags and towels.

John Kernis has been added to the sales froces of the Enterprise Paper Company, 855 N. 3rd Street, and will cover the manufacturing trade in the city and outlying territory for the firm's line.

PROVED AND TESTED METHODS OF RECLAIMING WASTE HEAT FROM THE MACHINE ROOM

J. O. ROSS ENGINEERING CORPORATION

30 E. 42nd St., New York City

549 W. Washington Blvd. Chicago, Ill.
1117 Tacoma Ave. Tacoma, Washington
79 Milk St. Boston, Mass.

ROSS ENGINEERING OF CANADA, LIMITED

New Birks Bldg.

MONTREAL

47 apparatus installed during last six years. 31 apparatus now going in.

Many of the largest mills have had these in connection with the world's largest machines for several years and have added others.

Not a theory nor an experiment, but an actual recovery of waste heat. This waste heat can be used to heat ventilating air or to heat water for mill processes, or to do both.

We have brought to this problem knowledge gained in hundreds of successful ventilating installations in paper and pulp mills.

Our systems not only accomplish the purpose but are economical in first cost, operating expense and free from complications which may interfere with the efficient production of paper by your regular machine room crew.

NEXT YEAR TO BE A YEAR OF NEW MILLS FOR CANADA

Elaborate Plans for New Construction and Plant Extensions Being Made for 1925—Wayagamack Pulp and Paper Co. Tells How New News Print Fill Be Financed—Abitibi Co. to Extend Plant to Provide for Increased Production—Price Bros. Mill at Kenogami Resumes Operations—Large Manitoba Pulp Area to Be Sold—Syndicate Promoting Pulp Plant for Port Alberni, B. C.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., October 27, 1924.—Despite the quietness in the news print market at the present time, and despite the fears as to the possibility of considerable over-production in the near future, plans for new news print mills and huge extensions to existing mills, in Canada, are still being announced. Last week it was stated in this column that the International Paper Company had decided to install three new machines in the company's plant at Three Rivers, bringing up the output to more than 600 tons per day. It was also announced that the Wayagamack Company was going into the news print business and this is now confirmed, the plan being to go ahead with the construction of a mill with a capacity of 200 tons of news print per day. Coinciding with this, enlargements are going on at Price Bros. mills at Kenogami, which are to double the capacity, bringing the total output to 900 tons per day. Now comes the announcement, as yet unconfirmed, that the Abitibi Power and Paper Company is contemplating the installation of at least three news print paper machines at the mills at Iroquois Falls, bringing the capacity to between 900 and 1,000 tons of news print daily.

Abitibi Company's Extension

The immediate reason for the rumors as to coming extensions by the Abitibi Company is the announcement that this company has completed details for the construction of a dam on the Abitibi River, adjacent to the mills, where there will be developed ultimately about 30,000 h.p. The present development of the company is 55,000 h.p., but this is only sufficient to meet the requirements of the present output of about 500 tons of news print per day. It is understood that the company expects to be able to finance the new power development from within its present resources or from earnings that will accrue within the next year and a half, for it will not be until the spring or summer of 1926 that the power plan is finally completed. Within that period, or possibly not until then, will definite plans be formulated for the increased production.

How Wayagamack Will Finance New Mill

Shareholders of Wayagamack Pulp and Paper have been called to meet on November 27 for the purpose of sanctioning the plans to proceed with the construction of a 200-ton news print mill, foreshadowed in a London cable last week, announcing the £400,000 guarantee under the British Trade Facilities Act. Meantime the management has issued a statement detailing how the project will be financed. A subsidiary company has been formed which will be entitled Wayagamack News, Limited, and the new concern will acquire land from the parent company on which to build its mill. This plan will provide a market for a portion of the pulp which Wayagamack now produces. The increased production will furthermore result in substantial economies by reason of the additional spread which it provides for the absorption of fixed overhead expenses. First mortgage 15-year serial bonds amounting to £400,000 will be created and issued by the new company, and second or general mortgage, 6½ per cent 15-year bonds will also be created and issued. The necessary arrangements have already been made for the sale of the £400,000 first mortgage bonds with the guarantee of the old company, and it is proposed that the second or general mortgage bonds of the new company, amounting to $1,500,000, will be purchased by the old company. To provide the parent company with funds for this purpose, the directors propose to create and issue general mortgage and collateral trust 6½ per cent 5-year gold bonds to the amount of $1,500,000. These bonds will be secured by a first mortgage on the old company's present bond issue; and also by the deposit with trustees of the $1,500,000 second mortgage of the new company. With the funds thus provided the directors anticipate that the new mill and its accessories can be completed and put into operation by the end of 1925. It is proposed that the Wayagamack Pulp and Paper Company will lease the plant of the new company for a period beyond the maturity of the new company's bond issues and on terms which will not only prove satisfactory to the old company, but will also provide for the redemption of such bond issues.

Price Bros. Mill Resumes Alterations

The news print mill of Price Bros. & Co. at Kenogami, which was recently put out of commission by the floods and landslide in which Sir William Price lost his life, has resumed operations at fifty per-cent of its capacity and from now on an increased output will gradually be obtained until the full production is again restored. It is estimated that early in the new year, the Kenogami mill will be producing news print to the limit of its capacity of 500 tons daily.

Manitoba's Pulp Area to be Sold

Practically all the pulp wood area in the province of Manitoba, an immense tract of land, including more than 1,100 townships, or 40,000 square miles, is being advertised for sale by the Dominion Lands Department, according to a news story from Winnipeg. The purchaser, according to the article, is entitled to select within five year, tracts containing not more than 3,000,000 cords of spruce pulp wood from within this area. The purchaser is required to commence his selection within one year, and is to erect a pulp and paper mill costing not less than $2,000,000.

Progress of Big Hydro Scheme

Engineers report that the works conducted at the Grand Discharge by the Quebec Development Company probably will have reached the first stage of development, which is to result in harnessing some 300,000 h.p. through utilizing the Lake St. John outflow, by the end of next year. This is three years after the enterprise was started and two years before the estimate of experts. Judging by these reports, which have been transmitted to an official source, the distribution of the power developed available from the damming work should be started early in the winter of 1926. If plans are carried out as originally intended by the Price and Duke interests, the development will go on for several more years, however, before the 500,000 h.p. is available, and then the full 1,000,000 h.p. can be offered either locally or over the border as it is rumored.

New Pulp Mill for British Columbia

Plans of a syndicate to build a pulp plant at Port Alberni, B. C., and to develop hydro-electric energy at Stamp Falls and Great Central Lake, are receiving the careful scrutiny of the lands department of the Esquimalt and Nanaimo Railway. The application of the syndicate has a three-fold character, firstly the building of a pulp mill on the flats at Port Alberni; secondly, the electrical development of Stamp River Falls, by a dam in the canyon using the canyon itself as a natural reservoir; and, thirdly, the erection of a dam at the outlet of Great Central Lake.

Baker Paper Co. Opens New Warehouse

ST. LOUIS Mo., October 29, 1924.—The Baker Paper Company, Inc., has opened an office and warehouse to handle paper for printers and publishers at wholesale at 211 North Third Street. The officers of the company are P. H. Baker, president; Roscoe G. Baker, vice-president; W. P. Regan, secretary; E. P. Bassett, treasurer.

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New York Trade Jottings

Wilson Compton, of Washington, D. C., secretary and manager of the National Lumber Manufacturers Association, and O. T. Swan, of Oshkosh, Wis., secretary of the Northwestern Hemlock and Hardwood Association, spent several days in this city last week.

* * *

William A. Gateley of the Department of Commerce, Washington, has been spending two weeks here engaged in work in connection with the Standardization and Simplification program of the Department of Commerce.

* * *

Last Sunday's "World" published an illustrated article of considerable length on Dard Hunter, maker of books. The article records that in New York his books have been bought by such institutions as the New York Public Library, the J. P. Morgan Library, the Metropolitan Museum, the New York Historical Society and Columbia University.

* * *

Among those who attended the meeting of the News Print Service Bureau here last week were the following who prolonged their visit here several days to call on their friends: Isadore Zellerbach of San Francisco; Percy B. Wilson, first vice-president of Spanish River Pulp and Paper Mills, Ltd.; E. B. Sterling, president and general manager of West End Paper Co.; Maurice Hoopes, president of Finch, Pruyn & Co., Inc.; George M. McKee, president Algonquin Paper Corp.; John R. Mauff of Chicago, manager of the Box Board Association; Edward Beck, secretary, and A. E. Cadman, assistant secretary, of the Canadian Pulp and Paper Association.

St. Regis Paper Co. Sells Herrings Mill

WATERTOWN, N. Y., October 30, 1924.—The Herrings mill now owned and operated by the St. Regis Paper Company is to be purchased by the new firm of Taggart Brothers Company, Inc., which is supplanting Taggart Brothers Company according to a recent announcement.

The following statement has been issued by the company:

"A new corporation is to be organized to be known as Taggart Brothers Company, Inc., which will take over the plant and business of Taggart Brothers Company in Watertown and purchase the Herrings mill and village of the St. Regis Paper Company, which is hereafter to be devoted to the manufacture of the same grades of paper and paper bags as are now made in the Watertown plant. Possession of the Herrings property is to take place within the next 30 days. The organization of the new company will be the same as the present Taggart Brothers Company.

"A special meeting of the St. Regis Paper Company stockholders has been called to ratify the action of their directors."

The officers of the Taggart Brothers Company are: B. B Taggart, president; J. W. Taggart, vice president, and J. W. Amos, secretary-treasurer.

The Taggart Brothers mill at present is devoted solely to the manufacture of paper bags and uses in this process mainly jute, old manilla rope being the principal material used in the work. The machinery is practically all patented by Taggart Brothers and is a different type from that used at Herrings mill of the St. Regis Paper Company where board paper is manufactured.

There is no wood pulp used in the manufacture of the bags and this means, if plans are to be carried out as contained in Mr. Taggart's statement, that new machinery will have to be installed which it is estimated will require a period of about six months.

The original Herrings mill was built in the early '90's by the late W. P. Herrings. Mr. Herrings had been in the cattle business in the west and in 1887 when his son, Frederick W. Herrings was graduated from high school he came to this section at his son's suggestion and started his first mill on Poor's Island in the Black river.

He had been in the business only a few years when he built the ground wood mill a short distance below Carthage. A settlement quickly grew up about the mill and the name of Herrings was given to the village. The enterprise prospered so that in a short time he built a sulphite mill at the same place.

In the cattle business in the west he had been closely associated with Mr. Armour, the meat packer, and butchers' paper was manufactured at the mill for use in that industry. Ae few years later, Mr. Armour indicated that he was ready to place large orders for board paper and machinery was installed at the Herrings mill for the manufacture of this product.

When Mr. Herrings' son died, his own health being poor he sold the Black river and Herrings mill to D. M. Anderson and the late George C. Sherman, who were controlling parties in the St. Regis Paper Company.

In 1916 the St. Regis company was reorganized and Floyd L. Carlisle of New York, who is a stockholder in the Taggart Brothers Company, became president of the St. Regis Paper Company.

The water power at Herrings is one of the best on the Black river, having a working head of about 20 feet and a reservoir that backs up a pond almost to Carthage. This power was developed in connection with the mill but in October, 1922, this power was sold with the other St. Regis powers to the Power Corporation of New York.

H. H. Reynolds Addresses Salesmen

NEW YORK, Oct. 27, 1924.—"The use of paper is a direct index of the advancement of a nation's civilization," said H. H. Reynolds, former president of the Salesmen's Association of the Paper Industry, before the New York Division of the Association today.

"We have seen the consumption of paper increase in the United States from one pound in the years following the Revolution to over 130 pounds per capita today,—a figure larger than that of any other nation; and our civilization has advanced to the same extent as compared with other nations, just exactly as the percentage of illiteracy has decreased. What the future holds no man can say, but the development is to be enormous."

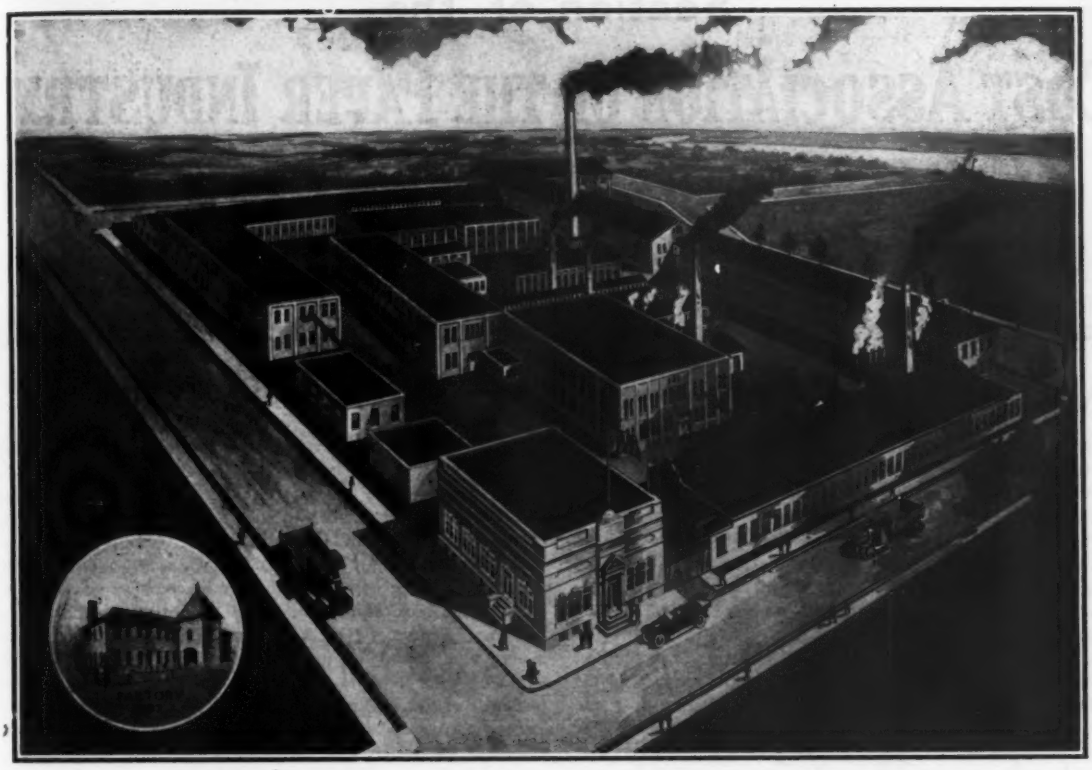
Mr. Reynolds told of the history of the paper industry, and pointed out particularly the amazing development of special uses of paper, a field which is yet in its infancy.

"However," he added, "our American business today is dependent upon paper, its wide use in business correspondence, in literature, and in its use for sanitary wrapping of food products, there is a field only beginning to be exploited."

Discussions of present markets for paper in a round table report of business conditions disclosed a very favorable situation. Production at present is up to normal, with three months ahead for which there is a great prospect of improvement in demand. Some mills are reported to be refusing to accept long-time contracts for paper carrying far into 1925, and many purchasers are seeking to assure themselves of a future supply to meet anticipated requirements from the consumers.

Hydroplanes Save Much Pulp Timber

Hon. James Lyons, Minister of Lands and Forests for Ontario, in a recent address before the Chamber of Commerce in Sarnia, said that the destruction by fire in Ontario in the four years prior to 1924 had been in excess of 6,000,000 acres of timber, a greater amount than that cut to maintain the pulp mills and saw mills in operation. Since the purchase of 15 hydroplanes the area patroled by land forces had been increased, and up to the present date only about 50,000 acres had been lost by fire this year. He claimed the innovation, despite the necessary expenses to get the organization together, had brought a saving of almost $300,000 to the department this year.



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METHODS OF WAGE PAYMENT—THE DAY WAGE*

This article deals with miscellaneous premiums and bonuses, profit-sharing, and the like, and with the day-wage system of payment.

In previous issues, various system of wage payment to stimulate production have been discussed. It has been the more or less common fault of all of these that there is the tendency to secure quantity at the expense of quality. In addition, there has usually been no compensation for other desirable qualities such as regularity of attendance. It is possible to provide direct financial incentive for any desired measurable quality in the shape of a bonus, which may be superimposed upon any other system of wage payment. Such bonuses, if properly adjusted, will stimulate the efforts of the workers in the desired direction. For instance, a rubber shoe company uses a rate in the fabric-cutting room described as a differential piece rate. The percentage of waste is carefully determined for each worker, and the worker is paid a rate per piece cut, the rate varying 5% for each per cent of variation in the percentage of waste. Care must be exercised in the use of any of these systems to avoid too many variations or too much complication. If there are too many variables, the worker will not feel the direct effect of any single one, and a large part of the incentive will be lost.

Of various systems, such as profit-sharing, pensions, insurance, and stock ownership financed in whole or in part by the management, little will be said. These types are not true forms of wage payment, in that the amount received by the worker does not vary directly with his individual performance in the shop. Such payments, made as a rule annually, cannot definitely be forecasted by the worker, and are of slight value in providing an incentive to higher output per man per hour. In cases where these systems have improved the efficiency of the worker, the result has been based primarily upon an already existing feeling of good-will on the part of the worker toward the management, rather than upon any idea of swelling the amount received. Many of these systems are cumulative in their effect, and thus act as an incentive to continued service, more especially among the workers who are receiving the benefits. It has been the experience of some companies, however, that the average worker would prefer to have the money in the pay envelope, and that greater good-will could be obtained if the excess profits were spent in improving working conditions.

Payment on the Basis of Time

A scheme whereby the employer pays the employee for the time spent, irrespective of other considerations, is commonly referred to as *day-work*. Actually the unit of time upon which the wage is based may vary from one hour to a year, but the philosophy of the plan is always the same. Hence the common term, *day-work*, is used.

Day-work was originally used long before the modern development of mass production in industry. It is still used in many instances. As with piece-work, it is interesting to note that the philosophy of the day wage still persists to such an extent that it is one of the prominent methods now used in industry.

For the purpose of analysis day-work may be divided into two classes. One type is that in which every employee of a certain craft classification receives the same wage regardless of individual qualifications. The other type is that in which the principles of scientific management are applied to the extent that work is carefully planned ahead for each employee and records are kept of the individual performance of the workman. Each craft group is broken down into a series of promotional steps carrying higher wages, these steps to be gained by the employee on the basis of individual performance. For want of better terminology, the first type listed is called elementary day-work and the second scientific day-work.

Because it is simple and can be used with any type of work, the day-wage system is often employed without due consideration being given to a study of the conditions conducive to its success. It is often used without thought being given to the requirements of the job, and much of the criticism of day-work results from experience gained in such use.

Disadvantages of Elementary Day-Work

Much of the present-day criticism of day-work arises from inexperience with the elementary type of day-work. There usually are two objections raised.

The principle objection to the day-rate system is that it represses the superior man. Ambitious employees reach the conclusion that they receive no direct benefits from hard work. An indolent fellow employee performing less work apparently receives the same reward. This criticism assumes that wages are the all-important consideration to an employee. It is claimed, on this basis, that a man who receives equal wages for less effort is recognized by the management as of equal value with the ambitious employee. Under these conditions, the logical tendency is for all the workmen to regulate their production so as to conform to the performance of the least energetic or least skilled.

The second criticism of day-work arises from the reasoning that the rate of production is variable and impossible of control or estimate. On this basis wages become an uncertain element of cost.

Scientific Day-Work

It is believed that these criticisms of day-work are erroneous. They are true only in case the conditions within the organization are such that they are allowed to become true. The philosophy of

*From Harvard Business Review.

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the day-work is not proved to be in error. The fault is, rather, with the management for attempting to use day-work under improper conditions. It has been pointed out that the chances for success of the piece-rate method are enhanced by certain conditions of administration. It is felt that there are also certain conditions conducive to the success of day-work.

In the early days of wide-spread use of day-work, industrial conditions were entirely different from those now obtaining. Industrial organizations were small and close contact between employer and employee was not only possible, it was the general rule. This close contact between employer and employee contributed largely to the successful use of day-work.

With modern methods of mass production in large organizations this contact cannot be maintained. It is believed, however, that new mechanisms can be used to the same end. These mechanisms are contained in the outline of the scientific wage system given below.

The ordinary day-wage system should be elaborated to include a definite standard of performance set for each task by time and motion study and a series of wage classes in each of the craft groups. Promotion to succeeding wage classes should be made on the basis of each workman's performance as evidenced by complete records.

A brief consideration of the outline of the plan indicates that it is calculated to overcome the repression of talented men through the provision for promotion when warranted by the workman's performance. The establishment of a definite standard for each operation will also assist in the realization of a more definite control of costs than is possible with elementary day-work.

The principal criticism of scientific day-work is that the provision of promotional steps within the craft groups is theoretically but not practically feasible. However, it is believed that no more difficulties will be encountered in the administration of this plan than with any of the modern systems offering direct money incentive for increased production. The time and money spent in keeping records of the workmen's performance and in studying and teaching proper performance should be no greater than in the Taylor, Emerson, or Gantt system. Any advantages to be derived from time and motion study can be capitalized under the day-work system. Wherever the expense incurred by such studies is justificable under the Taylor, Gantt, or Emerson system, it is likewise warranted under this system and the resulting records should be used as a basis for establishing wage classes and promotions.

The scientific day-wage system has several desirable features which do not appear under any of the other systems. It is based on the assumption that workmen are, in general, honest and will readily respond to good treatment. The desirable features of this method of payment are discussed below in the order of their importance.

First: It is believed that the provision for promotional steps, attainable on the basis of performance, is a better type of incentive than that given under the piece-rate system or the bonus system. With the other two types the incentive is furnished through a prospect of greater earnings; that is, on a direct financial basis. This places labor relations on a sordid basis and accentuates a workman's greed. His primary interest is not in the size of the pay envelope. His contentment is more directly influenced by the assurance of steady work and by the respect accorded him by the management and his fellow workers, though, of course, his wages must be such as will allow him to satisfactorily provide for himself and family. By promoting the workman to a higher plane in the organization when the records of his performance show an increased efficiency, recognition is given the desire for respect as well as the desire for more pay.

Second: Under the system recommended, careful work on the part of the workman is favored. The records of his efficiency should consider the quality of his output as well as the quantity. The workman can express his ideals of craftsmanship and his pleasure in a perfect output without loss to himself. This is a distinct asset with certain types of production where quality is paramount.

Third: The day-wage system adjusts itself fairly well to class distinctions among the workmen. Where discontent arises in any class, it is usually due to a desire to raise the wages of the class as a whole, rather than those of some talented individuals within the class. If the wage-earner is content with the standards of life of his class, he is satisfied with wages which meet the requirements of this class standard. Expenses appear to be chiefly a function of time, and the wages to cover these expenses will then likewise appear to be chiefly functions of time—so much per day or week.

Fourth: The calculations involved in the preparation of pay-rolls under the day-wage system are simple. Adjustment to the varying costs of living may be made in the manner now used, by paying bonuses above the day rates. If a further incentive toward confidence and cooperation of the workmen is desired, some profit-sharing system may be added without difficulty.

The scientific day-wage has a very wide field of application. With any of the other systems, it is always necessary to pay a part of the labor on the day rate, either because it is not possible to measure the performance sufficiently accurately for incentive payment or because it is difficult to maintain equality under such payment. With a day-wage payment system, however, these performances fall in naturally with the rest of the work, instead of being treated as exceptions. The rating of the men can be upon quality instead of quantity, or upon a combination of the two as desired.

Many of the difficulties encountered under other systems are eliminated. To a large extent, the tendency to high speed under the pieces rate, and the difficulty arising out of its guarantee are minimized. The length of service and other factors can be taken into consideration in the rating of employees. The transition from regular day rates to scientific day rates is much easier than a change to any of the incentive systems. It can proceed conveniently without difficulty or friction, either in the shop or in the pay office.

Conclusions

The discussion of the day-wage system concludes the series on systems of wage payment. As was set forth in the first article, the underlying idea rather than the form is the more important. No matter what the wage system, it must pay to the average worker at least the going wage for the type of work; in the case of an incentive system, where the worker is expected to produce more than the average, the wages must be above average. In any case, management and control is an all important factor. Good management can often succeed regardless of the actual form of wage payment. But that same good management can be strengthened and preserved for the future by the adoption of the best possible methods in its most important function—relations with the workers. Honesty in the use and administration of any system, is, of course, an additional requisite for its success.

The possible forms of payment have been examined in these articles in the light of their adaptability to varying conditions of production and the important effect that those conditions have upon the selection of a method of payment for a particular plant.

John Waldron Corp. Issues New Catalogue

A new catalogue fully describing its embossing machines and their adaptability for use by paper manufacturers and paper convertors, as well as showing illustrations of samples of work of its machines, has just been issued by the John Waldron Corporation, the sales and engineering offices of which are located at 30 East 42nd street, New York. Established in 1827 the company, since that time has specialized in manufacturing all types of embossing machines for surfacing all classes of goods. The Waldron embossing machines range in size from the 6-inch wide "Pony" machine to machines 108 inches wide. The John Waldron Corporation during its ninety-seven years of business life has gained a unique position among industrial plants of this continent and it products have an enviable reputation for their quality standard.

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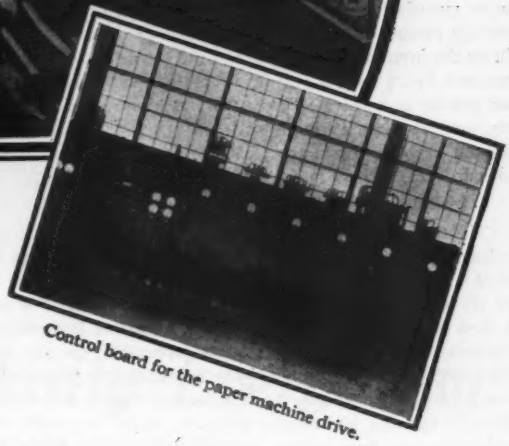

Control board for the paper machine drive.

At the Columbia River Paper Mills

ANOTHER Westinghouse sectional paper machine drive is now in operation. This time it is at the Columbia River Paper Mills, Vancouver, Washington, that the capable performance of Westinghouse drive is again being demonstrated.

In a remarkably short time after the drive was first started with stock on the machine, a commercial quality of paper was being produced in continuous quantity. This is evidence of the ability of the Westinghouse Company to design, build and apply electrical equipment which meets all the requirements of a successful sectional paper machine drive.

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INTEREST OF TRADE ASSOCIATIONS IN PATENTS AND TRADE-MARKS*

By Karl Fenning

The executive officers of many trade associations pay little or no attention to patents and trade-marks. This may be reasonable, since they are generally looked upon as monopolies and as of individualistic character. Nevertheless, since community of interest may be developed, it may be desirable to have those in charge of trade-association activities direct their attention to patents and trade-marks.

There is sometimes an advantage in having the members of an industry agree to transfer all patents which they own or may own to a trustee, which may be the trade association, with the understanding that the trustee will license every member of the association to employ all of the patented inventions for a reasonable consideration, or for none. The advantage which a member of the association gets by freedom to use the inventions of other members of the association is generally a sufficient consideration to him for surrendering his own patents. Such an arrangement, of course, should clearly specify that in operating under these patents no manufacturer should imitate in shape, form, or style any device already placed on the market by another manufacturer. A license under a patent need not necessarily allow the licensee to make a Chinese copy of the patented device as built by the inventor, or the owner of the patent. A corollary of this sometimes limits such a pooling of patents for license purposes to those relating to smaller or less important advances or improvements in the industry, thus leaving to each manufacturer who owns a really important or basic patent the exclusive right to the invention there involved.

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The trade association may well inform its members of some of the elementary principles relating to United States as well as foreign patents. A patent should be carefully investigated in view of the prior art before it is purchased or dealt in or sued on. The association then may properly employ a corps of patent lawyers and investigators, whose function will be to investigate for any member of the association any patent which is brought to it for purchase or license. The members of the association may thus be prevented from inadvisedly entering into royalty contracts, which are really without consideration and may become onerous. This investigating bureau also may be called upon by a manufacturer about to produce a new article, or go into a somewhat new line, to investigate the patent situation and determine whether the new venture of the member is likely to result in loss due to infringing patents owned by others.

The members of the association should be advised that in most instances an application for a foreign patent should not be filed until assurance is received that a patent is to be allowed in the United States Patent Office, remembering that it is advisable to file abroad within one year of the filing of the United States application. If no patent can be procured in the United States, probably no valid patent can be issued in some of the foreign countries, and this delay will save the expense of foreign patent applications in many instances. Most foreign countries require annual taxes, which increase each year and become extremely burdensome. Many countries require actual manufacture under the patent in the country in order to keep the patent alive, and some provide that importation into the country of goods covered by the patent annuls the patent. A knowledge of these facts frequently saves much expense and trouble by causing manufacturers to limit their foreign patent applications to countries in which there is a reasonable prospect of a satisfactory financial return from the patent.

Though the United States Patent Office issues each week an official gazette, describing every patent as issued, and a circular of "General Information Concerning Patents," there is a vast amount of information in the United States Patent Office which has not been properly disseminated. Funds have never been available for printing volumes describing patents in the various arts. The office does however keep patents classified according to subject-matter, so that a trade association may develop a file of accessible information on patents relating to the industry in which it is interested. Many patents, for one reason or another, are never worked or the inventions are not put into use by the patent owners. At the end of the 17-year period, for which the patent is granted, the inventions described in these patents are free and open to be used by the public. In order that the public may be advised when these inventions become free, a trade association might well report to its members at stated intervals, say once a year, all of the patents, or those that seem worth while, which have expired. These may be identified by reading 17-year-old issues of the *Official Gazette of the Patent Office*, in which are published a cut and claim of each patent as granted.

II

Frequently an entire industry is affected by a single patent which is so revolutionary as to cause a substantial reorganization of the industry. Such patents should be reported to all members of the industry as soon as issued. Such patents sometimes contain broader claims and are more expansive on their face than the prior activities of the industry warrant. While an inventor is always entitled to the reward for his invention, it is of course to the interest of the public and to the interest of the industry to see that he gets no broader protection than his invention merits. When an attempt is made to establish such an important patent by suit for infringement against a manufacturer, the entire industry may well join the manufacturer, possibly in sharing the expenses of the suit, certainly in assisting the defendant to find proof of prior uses which may exist, but which may have been neither patented nor described in printed publications. Many things are done in factories which are not disclosed to the world and which may be known to only a few in the particular factories.

Sometimes even after a patent for an important invention has been established by a court decree, it is possible to obtain more satisfactory licensing agreements if the industry acts as a whole. The owner of the patent naturally accepts a smaller individual royalty from a large number than he could afford to accept from a single manufacturer, and this is to the benefit of the industry and of the public as well because it allows all manufacturers to enter into selling competition.

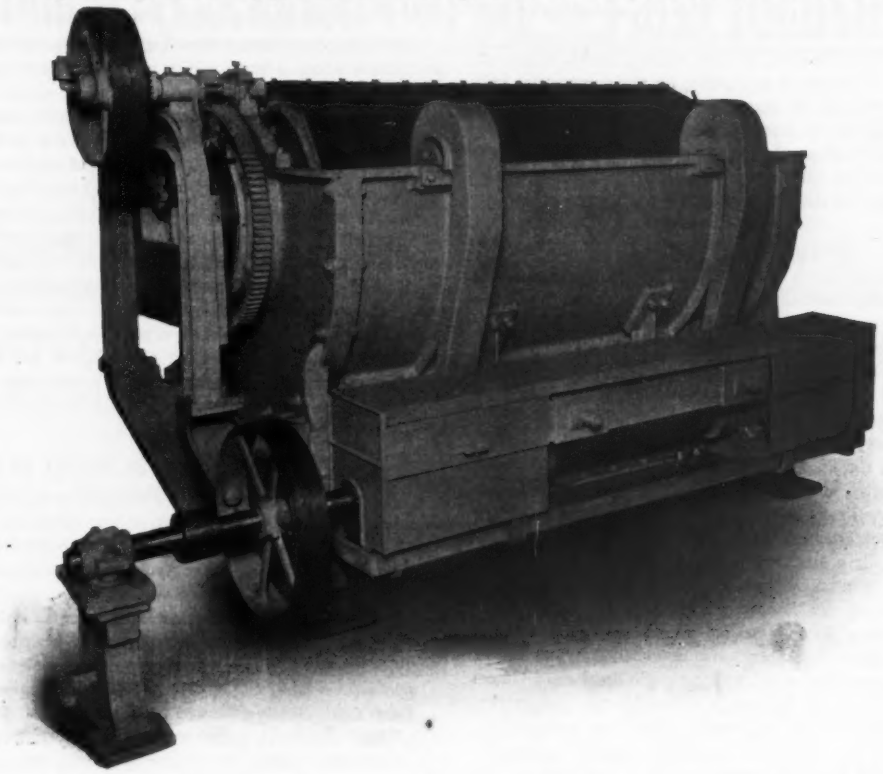
Pending a suit the owner of a patent frequently declines to allow its use, unless each manufacturer enters into an agreement to acknowledge the validity of the patent and to continue royalty payments, even if the patent is finally declared invalid in the suit then pending. The unreasonable burden thus placed upon the manufacturer and upon the public may be relieved by a combination of some or all the members of the industry in organizing a new company to manufacture the patented device and supply it to the members under reasonable conditions.

Patents are sometimes issued for things which are not in fact new, because the Patent Office cannot have absolutely complete records of the prior art. Many real inventions are made and carried into effect without being patented or described in printed publications. For the protection of the public generally and of the industry, trade associations should urge their members to patent everything possible as an insurance against someone else later getting a

*From Harvard Business Review

The "Moore & White" Rotary Screen

Patents pending on the application of flat plates to rotary screens, also construction



It's Gaining In Popularity Every Day

HERE ARE A FEW REASONS WHY

Cleaner Paper **Large Capacity** **Economical**

Easy To Operate

Read Below What Practical Paper Makers Think of It

October 6, 1924.

Gentlemen:

We have two Moore & White Rotary Screens. The first was started December, 1923, and the second January, 1924. We have had no trouble of repairs on either of them.

We make book, litho and offset paper from 25 x 38-35 lbs. to 25 x 38-210 lbs. on these screens. We use a 15 cut plate on the light weight and 17 cut plate on the heavy. Our men have been timed when changing plates and time consumed was 42 minutes.

We are pleased with their performance and certainly would buy Moore & White Screens, if we were in the market again.

Personally, I think so much of them, that I have replaced my own patented flat screens with the Moore & White Screens.

(Name of mill on application)

October 6, 1924.

Gentlemen:

In July of this year we installed two of your Rotary Screens on our No. 1 machine. After operating same for two months we are very glad to say that they have fulfilled our greatest expectation.

We are able to make a very much cleaner sheet of paper than we could on flat bed screens, the paper being free from lumps and other objectionable materials which we were unable to eliminate by the use of the flat bed.

We can therefore very cheerfully recommend this screen to any one making similar grades of paper. We make rope and manila papers.

We also wish to state these screens do not require any attention from the operator; in fact, they are entirely fool proof.

(Name of mill on application)

SPECIFICATIONS AND PRICE UPON REQUEST

The Moore & White Co.

Established 1885

No. Philadelphia Station, P. R. R. **Philadelphia, U. S. A.**

patent for the same thing and causing much trouble and expense. Many things, which may seem to be too insignificant to be patented, may be brought to the public attention as an insurance against trouble arising from later inventors claiming them if they are carefully described, preferably with illustrations, in trade journals. The trade association should urge its members to see that every new thing done is announced either by a patent or by a proper descriptive publication. It might even be desirable to establish a trade journal under the control of the association, so that matters which might not be considered news or worthy of publishing by the commercial publisher may be published as an insurance against difficulties which may arise from an inability to prove a prior use beyond a reasonable doubt in order to invalidate a subsequently granted patent. A trade journal already established may be persuaded to establish a special section for this purpose at the expense of the trade association.

III

A knowledge of trade-marks which are in use in the industry is always useful and many times invaluable to the business man. An industrial association can be of great use to its members and to the public generally interested in the industry, if it can at its headquarters establish a trade-mark deposit bureau. The purpose of such a bureau should not be to give to the depositor any rights nor should it be limited to receiving trade-marks of its members. All members of the industry should be requested, urged, and, if possible, required to deposit at the association headquarters every trade-mark employed, together with a statement of the circumstancs under which it is employed, the particular goods with which it is used, and the various colors or color combinations involved. The United States Patent Office has on file a large number of trade-marks. Its registrations, however, are limited by the Constitution to trade-marks employed in interstate or foreign commerce. Many trade-marks, therefore, which are employed locally are not eligible to registration in the Patent Office. Moreover, there are many identifying marks which by statute are prohibited from registration in the Patent Office, so that it is important for an industry to assemble its own marks. The trade-marks registered in the Patent Office are arranged by classes, so that all marks relating to a certain industry are readily accessible, and it would be to the advantage of an industry to see that all marks registered with it are reported to the Patent Office, since the law prohibits registration of a mark already in use by another than the registrant, and the lists provided thus by the industrial association may serve as a protection against unauthorized registration. Much money is lost by innocently adopting a trade-mark which may interfere with a mark already in use. A trade association can help to avoid this needless waste by requesting or requiring its members to submit to the association every mark before it is adopted, so that headquarters may call attention to other probable interfering marks already in use.

The United States Patent Office publishes each week in the Official Gazette trade-marks which it has passed for registration, giving interested parties 30 days in which to oppose any registration. A trade association can protect its members by examining these current lists and notifying its members, who are likely to be injured by registration of a mark which may interfere with a mark known to the association.

A trade association can help its members in foreign commerce by constantly keeping them advised that in many countries trade-mark registration is well-nigh essential before entering into commerce, since selling goods before registration of marks in many countries may suggest to some unauthorized person residing in the country to register the marks and exclude the authentic goods or hold up the manufacturer for a payment. Furthermore, some countries have heavy penalties for importing goods bearing an unauthorized registered trade-mark, and in some countries such goods are confiscated, so that a trade association should keep its members informed not only with respect to United States trade-mark laws, but with respect to the trade-mark laws of foreign countries, particularly those with which its members have dealings.

It would not seem to be unreasonable to expect the trade association to prepare for circulation among its members a list of trade-marks used in the industry, corrected at least annually, and also a manual of information and warnings with respect to possible trade-mark difficulties, both domestic and foreign.

There is sometimes an advantage to the public in having a trade association adopt a mark which all its members may use, either in advertising matter or on labels attached to goods. While such an association's marks may be controlled and their unauthorized use enjoined in the courts, they cannot be registered in the Patent Office, since they are not technical trade-marks, being not the sole property of any individual and hence not clearly indicating source or origin.

An industrial association may effectively serve the public and its own members by seeing that no one connected with the industry employs a label with a fraudulent, deceptive, or untrue statement on it. The United States Patent Office may refuse to register a trade mark if it is employed in connection with such a statement, and since most trade-mark and unfair-competition litigation in the courts is conducted on the equity side, a plaintiff will not be given relief if he has associated his trade-mark or his goods with a fraudulent, untrue, or deceptive statement.

Shanghai Paper Imports $6,563,741 in Six Months

WASHINGTON, D. C., Oct. 27, 1924.—The growing trade of the port of Shanghai in foreign paper and products in the first six months of 1924 reached a total value of 8,338,564 Haikwan taels, equivalent to $6,563,741. The American Trade Commissioner, G. C. Howard, in reporting the trade to the Department of Commerce says that these figures do not include a number of the finer grades of paper, such as art printing, bank note and blotting, toilet and wall papers, reports of which are prepared only at yearly periods.

Importations from Great Britain reached a total value of 1,730,964 Haikwan taels, closely followed by the United States, imports valued at 1,273,236 Haikwan taels, and Japan, whose shipments of paper and board were valued at 1,171,081 Haikwan taels. The bulk of the remainder came from the Scandinavian countries and Germany, imports to the value of 1,076,396 Hailkwan taels being received from Sweden and 999,290 Haikwan taels and 862,193 Haikwan taels from Norway and Germany respectively. A considerable amount was also received from Italy, imports from that source totaling 670,279 Haikwan taels.

Imports of newsprint paper ranked first in importance, both from the standpoint of quantity and value of the product. The principal sources of supply were Sweden, Norway, Italy and Japan. Book paper imports came chiefly from Great Britain. Imports of wrapping paper were chiefly from Norway. Importations of waxed or greaseproof papers came chiefly from Great Britain. Germany ranked first as a source of supply for writing paper, while the United States dominated the market for coated papers, having furnished approximately two-thirds of the imports during this period.

Thunder Bay Paper Co. Starts New Grinder Room

The new grinder and wet machine room of the Thunder Bay Paper Company, Ltd., at Port Arthur, Ont. was placed in operation September 20. The new building is of brick construction 110 x 98 feet. The company has also just completed a new transformer building of brick construction 28 x 23 feet.

The equipment of the new buildings consists of three four-pocket Pascol grinders, five 84-inch Pascol wet machines, three 600-ton Pascol hydraulic presses and three 850 H. P. Westinghouse Synchronous motors.

These additions bring the total capacity of the plant up to 120 tons of air dry ground wood daily.

Section of the
Technical Association of the Pulp and Paper Industry

AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G. MacNAUGHTON, Secretary

REPORT ON COMMERCIAL-MILL TEST FOR CLAY RETENTION IN PAPER AND LOSSES IN WHITE WATER*

1. Introduction

In connection with the work of the Paper Section of the Bureau of Standards in the study of foreign and domestic clays in paper making, it was thought advisable for that section to cooperate with the Committee on Waste in the Industry of the Technical Association of the Pulp and Paper Industry, in making some practical mill tests to determine white water waste and to obtain additional data on clay retention.

In this investigation it was planned not to interrupt operations in the mills where the tests were to be made or to interfere with their production. The necessary data were to be secured from samples of stock taken at different points from a machine in operation. The sampling was to be so timed that the breaks in the paper would come at the time of changing the rolls at the reel.

To obtain other data on the comparative values of various foreign and domestic clays it was planned to follow the commercial-mill test with runs in the paper mill of the Bureau, duplicating as nearly as possible the conditions found in the commercial mill. For this purpose, sufficient clay and pulps for several 50-pound beater runs have been supplied to the section, and the tests on its machine will soon be completed. The mill of the paper section is, however, not equipped with a saveall, and in comparing the data with that of mills having savealls this will have to be considered.

2. Collection of Data in Commercial Mill

(*a*) BEATER.—The amount of pulps and paper broke used in furnishing the beaters was determined by weighing. The clay slip and size solution were measured by volume, and from analysis of representative samples the amount of solid material added was determined. The alum was weighed and added dry.

The water going to make up the furnish, except that added with the clay and size, was drawn from the saveall. Samples of this were taken and the amount of stock per gallon determined.

Before the stock in the beater was dropped to the chest, a sample of it was taken and from this the concentration of the stock was determined. Ash was run on the bone-dry sample of the stock, and from the results thus obtained the percentage of clay was figured.

(*b*) MACHINE.—Samples were taken at the following places on the machine: Stuff box, head box, after leaving wire, after first press, after second press, and at the reel. The percentage of solids and percentage of moisture were determined for these samples, and the ash of the bone-dry content was determined. From the percentage of ash the percentage of clay was figured. The paper made, including the paper at the reel, the dry broke and the wet broke, was weighed.

(*c*) WHITE WATER.—White water samples were taken from the water going to the saveall, at the bottom of the saveall (water used to dilute stock going to the machine) and from the saveall water going to the sewer. From these samples the percentage of stock per gallon was determined, and from the bone dry contents the percentage of clay and fibers.

3. Tabulation and Explanation of Data

The tables 1 and 2 of data are supplemented with such explanation as it was thought might be helpful in their interpretation:

TABLE 1—BEATER FURNISH

Beater number	Bone-dry material					
	Sulphite pulp	Soda pulp	Broke paper	Clay	Resin	Alum
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
1	1,333.8	215.0	96.5	421.8	23.5	45
2	1,333.8	216.0	96.5	421.8	23.5	45
3	1,333.8	225.0	168.8	421.8	23.5	45
4	1,538.1	209.7	111.0	464.7	23.5	45
5	1,538.1	209.7	145.9	464.7	23.5	45
6	1,333.8	225.0	159.2	464.7	23.5	45

TABLE 2—WATER FROM SAVEALL USED TO FURNISH BEATER

Beater number	Stock per 1,000 gallons	Clay in stock	Water from save-all
	Pounds	Per cent	Gallons
1	1.19	60.6	2,600
2	1.28	67.6	2,674
3	11.1	53.8	2,630
4	16.2	53.7	2,804
5	12.2	52.0	3,008
6	12.8	57.5	2,759

Samples were taken on the machine at the places specified in Table 3. They were weighed, dried in an electric oven, and again weighed to obtain the dry weight. From these weighings the per cent of solids in the sample was obtained. Ash determinations were made on the bone dry samples and are reported as per cent ash. The results are given in Table 3 and shown graphically in Figs. 1 and 2.

*Technologic Papers of the Bureau of Standards No. 262.

Under "average" is given the average percentage of solids and of ash for each kind of sample. The per cent ash for the stock was taken from work in the Paper Section, and is an average of three runs on sulphite and soda stock, made into paper in the usual way but having no clay in the furnish.

The per cent ash for stock subtracted from the per cent ash on samples taken gives the per cent of ash due to the clay, but since clay loses a certain amount of water on ignition, it is necessary to divide the per cent due to clay by such a factor as will give the true percentage of clay actually in the paper. The factor for the clay was determined by igniting a weighted amount of bone dry clay under the same conditions as those under which ash was run on the paper samples. The loss in weight represents combined moisture.

The clay used in the mill test lost 11 per cent on ignition. Since only 89 per cent of the clay remained, 0.89 is the factor by which to divide the per cent ash due to clay in order to get the true percentage of clay in solids. For example,

	Per cent
Ash	= 18.52
Ash for stock	= .82
Ash due to clay	= 17.70

$$\frac{17.70}{0.89} = 19.9 \text{ (true percentage of clay in solid,}$$

TABLE 3—DATA ON MACHINE SAMPLES

Time of taking samples	Material	Machine position of samples					
		Stuff box	Head box	After couch	After first press	After second press	Reel
a. m.		Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
10	Solids	5.48	0.920	20.4	29.2	34.0	96.0
	Ash [1]	18.66	27.55	17.24	16.42	16.62	16.49
11.05	Solids	4.67	.845	20.9	30.4	34.3	96.1
	Ash [1]	17.12	27.70	17.21	17.00	16.62	16.66
p. m.							
12.15	Solids	5.12	.873	21.6	28.0	33.6	95.5
	Ash [1]	19.61	30.00	17.48	17.03	17.04	16.83
1.30	Solids	5.23	.837	21.1	29.3	33.6	96.1
	Ash [1]	19.55	30.34	18.37	17.38	17.64	16.97
2.15	Solids	5.13	.873	21.8	30.0	33.6	96.5
	Ash [1]	19.20	30.76	17.88	17.80	17.35	17.49
3	Solids	4.95	.834	21.0	29.7	33.9	96.5
	Ash [1]	18.30	29.68	16.35	16.15	16.10	16.16
4.15	Solids	4.95	.873	20.6	29.0	32.9	97.7
	Ash [1]	17.90	29.26	18.17	17.37	17.65	17.44
5.15	Solids	4.95	.871	21.8	29.3	31.8	95.5
	Ash [1]	17.85	27.06	16.83	16.20	16.10	16.07
AVERAGE							
	Solids	5.06	0.866	21.15	29.35	33.46	96.5
	Ash [1]	18.52	29.07	17.44	16.92	16.91	16.71
	Ash for stock [2]	.82	.89	.89	.79	.79	.78
	Clay [2]	19.9	31.6	18.6	18.1	18.1	17.9

[1] Based on total solids. [2] See preceding explanation, p. 361.

Clay determinations were run on white water samples also. Table 4 lists the results obtained, while Fig. 3 shows these results graphically.

TABLE 4—WHITE WATER SAMPLES[1]

Time interval	Water going to save-all			Water from bottom of save-all used to dilute stock			Water going from save-all to sewer		
	Solids	Solids	Clay in solids	Solids	Solids	Clay in solids	Solids	Solids	Clay in solids
a. m.	Lbs./gal.	Lbs./1,000 gals.	Per cent	Lbs./gal.	Lbs./1,000 gals.	Per cent	Lbs./gal.	Lbs./1,000 gals.	Per cent
10.35 to 11	0.0124	12.4	55.0	0.0332	33.2	52.1	0.00047	0.47	96.2
11.30 to 11.45	.0121	12.1	54.3	.0325	32.5	50.3	.00041	.41	88.2
p. m.									
12.15 to 12.30	.0137	13.7	55.4	.0274	27.4	56.3	.00075	.75	74.1
12.50 to 1.15	.0129	12.9	60.4	.0348	34.8	57.1	.00060	.60	84.4
1.30 to 2	.0116	11.6	60.4	.0282	28.2	57.0	.00068	.68	84.4
2.30 to 2.50	.0137	13.7	60.4	.0324	32.4	58.8	.00057	.57	85.1
3.10 to 3.30	.0124	12.4	61.9	.0306	30.6	59.4	.00037	.37	88.4
3.45 to 4.15	.0125	12.5	58.5	.0342	34.2	58.0	.00038	.38	83.0
4.30 to 4.45	.0120	12.0	58.3	.0271	27.1	57.2	.00070	.70	76.5
Average		12.59	58.29		31.15	56.24		548	84.53

[1] Samples were taken by George D. Bearce, vice chairman committee on waste in the industry, Pulp and Paper Association. Investigation and tests of samples made by Merle B. Shaw and F. E. Frawley, paper section, Bureau of Standards.

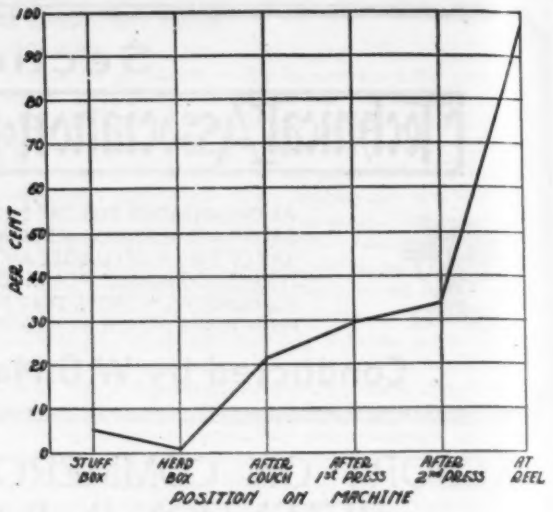


FIG. 1.

Per Cent. Solids on Machine Samples.

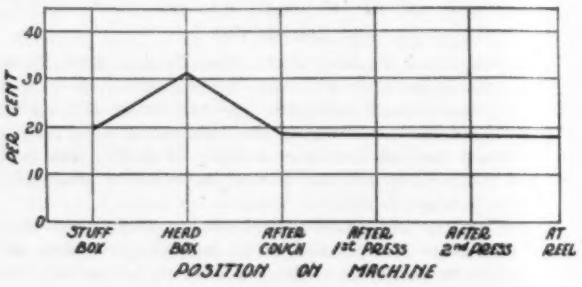


FIG. 2.

Per Cent. Clay Solids in Machine Samples.

Table 5 shows the amount of saveall water going to the sewer. The analysis of this water was shown in Table 4.

TABLE 5—AMOUNT OF SAVEALL WATER TO SEWER[1]

Filling of tank No. 1	Time of filling			Water to sewer	Filling of tank No. 2	Time of filling			Water to sewer
	Start	Completion	Period			Start	Completion	Period	
			Min.	Inches				Min.	Inches
First	11.00	11.30	30	26	First	11.30	12.00	30	35
Second	12.00	12.15	15	26	Second	12.15	12.30	15	28
Third	12.30	12.45	15	25	Third	12.45	12.55	10	25
Fourth	12.55	1.10	15	24	Fourth	1.10	1.35	25	29
Fifth	1.35	1.50	15	25	Fifth	1.50	2.01	11	25
Sixth	2.01	2.15	14	25	Sixth	2.15	2.27	12	26
Seventh	2.27	2.41	14	25	Seventh	2.41	3.00	19	29
Eighth	3.00	3.10	10	25	Eighth	3.10	3.21	11	25
Ninth	3.21	3.34	13	24	Ninth	3.34	3.45	11	24
Tenth	3.45	3.56	11	23	Tenth	3.56	4.07	11	25
Eleventh	4.07	4.18	11	25	Eleventh	4.18	4.30	12	29
Twelfth	4.30	5.00	30	25					
Total				298	Total				291

	Gallons
To sewer through No. 1 in 6 hours, 298×155.16 [2]	46,237
To sewer through No. 2 in 6 hours, 291×153.18 [3]	44,575
Total to sewer in 6 hours	90,812
Total to sewer during test of 7½ hours	109,729
Total to sewer per 24 hours	363,240

[1] Measurements were made during the test from 11 a. m. to 5 p. m. (six hours).
[2] Tank No. 1 was 29 feet by 103 inches.
[3] Tank No. 2 was 29 feet by 103 inches, but had two 2-foot square piers in it, thus making it necessary to deduct 5 gallons per inch of depth measurement.

Table 6 and Fig. 4 were derived from the data of the preceding tables. Table 6 shows the amount and distribution of water used during the run.

TABLE 6—APPROXIMATE DISTRIBUTION AND ELIMINATION OF WATER

Water	Amount during test (7½ hours)	Amount during 24 hours
	Gallons	Gallons
In finished paper	52	172
Evaporated off	2,706	9,213
Removed by second press	602	1,992
Removed by first press	1,925	6,372
From save-all for furnishing beaters[1]	15,765	55,402
Washing down beaters	9,693	32,084
Overflow from save-all to sewer	109,729	363,340
Total	.....	468,573

[1] Three thousand nine hundred and seventy-eight extra gallons of water were added with clay slip and size solution in furnishing beaters during test, or the equivalent of 13,167 gallons per 24 hours.

TABLE 7.—PHYSICAL AND CHEMICAL TESTS ON FINISHED PAPER

Test number	Sample number	Time of taking sample	Weight, 25 by 40	Weight, 44 by 62	Bursting strength	Thickness	Ratio[1]	Resins	Ash[2]
		a. m.	Pounds	Pounds	Points	Inch	Per cent	Per cent	Per cent
8817	1	10.00	55.0	150.0	11.5	0.0031	21.0	1.17	15.6
8818	2	11.00	48.6	132.6	11.1	.0030	22.8	1.08	15.9
		p. m.							
8819	3	12.10	53.4	145.3	11.5	.0032	21.5	1.29	16.5
8820	4	1.20	51.3	139.5	10.0	.0030	19.6	1.28	16.6
8821	5	2.15	52.2	142.2	10.1	.0030	19.5	1.16	17.1
8822	6	3.10	50.2	137.8	10.1	.0030	20.3	1.09	15.8
8823	7	4.10	53.9	147.0	11.1	.0030	20.6	1.16	16.9
8824	8	5.15	55.6	154.2	11.1	.0032	20.0	1.11	15.4

[1] Ratio is obtained by dividing the bursting strength by the weight of the standard size ream (25 by 40–500) and multiplying the result by 100.
[2] Ash not run on a bone-dry sample, but on sheet at time of analysis.

4. Amount and Analysis of Stock at Different Parts of the Paper Machine

The following data are not included as having any direct value in the study of clay retention or losses in white water. It was believed, however, that little general information has been obtained as to either the amount or kind of stock at the different parts of a paper machine, therefore, the determinations for this run are included as being of general interest.

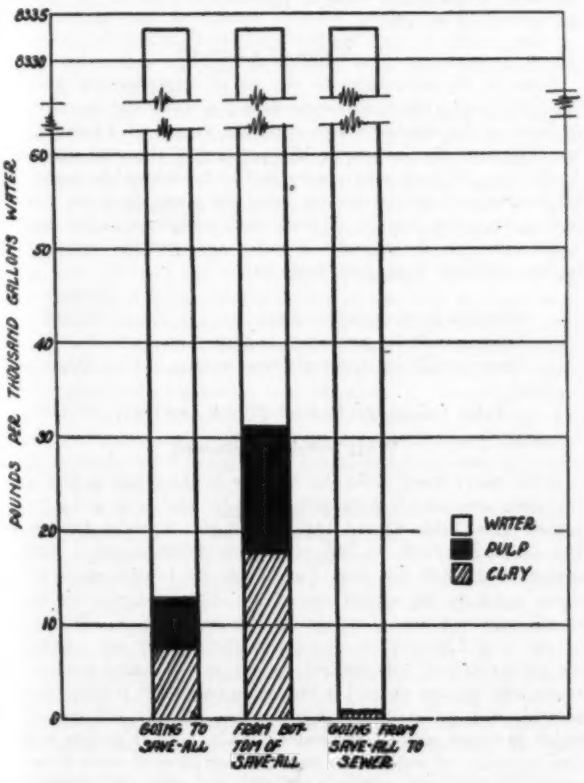


FIG. 3.
Stock Retention in Water of Saveall.

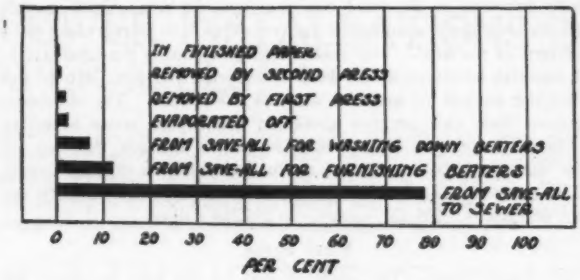

IN FINISHED PAPER
REMOVED BY SECOND PRESS
REMOVED BY FIRST PRESS
EVAPORATED OFF
FROM SAVE-ALL FOR WASHING DOWN BEATERS
FROM SAVE-ALL FOR FURNISHING BEATERS
FROM SAVE-ALL TO SEWER
0 10 20 30 40 50 60 70 80 90 100
PER CENT

FIG. 4.
Distribution of Water Throughout Paper Run.

Beaters

(*a*) BEATER.—

Beater number	Weight of dry furnish	Weight of stock and water from concentration figures	Water in furnish	Water from save-all
	Pounds	Pounds	Gallons	Gallons
1	2,136	29,882	3,324	2,690
2	2,136	31,411	3,508	2,874
3	2,218	29,455	3,263	2,630
4	2,383	31,563	3,456	2,824
5	2,413	33,282	3,699	3,068
6	2,251	31,048	3,451	2,739
Total	13,537	186,641	20,741	16,765

In figuring beater furnish no account has been taken of the stock furnished with the water drawn from the saveall. The amount of stock would only have been from 150 to 250 pounds for six beaters. (See Table 2.) A small error in moisture or weight on six beaters would have been as great as that, or a slight error in measuring the stock in the beater chest or machine chest at the beginning or the end of the test would have affected the results to that extent. Therefore, the amount of stock for the test is considered as the total amount added to the six beaters, and this is also considered as the amount delivered to the head box.

Considering that 13,537 pounds (the total weight of dry furnish) represent 7.25 per cent (by analysis) of the total weight of stock and water and that this was the average concentration of the six beaters, the computed weight of stock and water is 186,717 pounds, or only about 9 gallons more than the amount obtained by adding the individual beater figures. This is considered a good check on the analysis.

Stuff Box

(*b*) STUFF BOX.—The average concentration of stock at the stuff box was 5.06 per cent. The dilution from 7.25 per cent to 5.06 per cent was due to the water which was used in washing down the beaters and which was taken from the saveall.

Assuming that 13,537 pounds represent 5.06 per cent of the total amount, this percentage representing the average concentration of the stock at the stuff box, the total weight of stock and water delivered to the stuff box was 267,530 pounds. This is 80,889 pounds more material than the beater furnishes (186,641 pounds) and is the 9,693 gallons of water coming from the saveall.

The total amount of water now with the stock is 30,436 gallons, of which 26,458 gallons have been drawn from the saveall to bring about the dilution at this point.

Head Box

(*c*) HEAD BOX.—Under head box was figured the amount of water necessary to dilute the stock coming from the stuff box to the dilution delivered at the head box. The weight of the

stock delivered to the head box was considered as 13,537 pounds and the average concentration figures showed it to represent 0.866 per cent of the total. This makes 1,563,164 pounds the total weight of material furnished at the head box during the test. Up to this point the amount of material was 267,530 pounds. The difference between these two amounts gives the quantity of water necessary to bring about this further dilution. It is thought that not all this water can be considered as having come from the saveall. (The approximate amount of water necessary to make a 0.866 per cent dilution is 1,295,634 pounds, or 155,258 gallons.)

First Press

(*d*) First Press.—The amounts used for the total weight of the paper leaving the wire and passing to the first and second presses are not theortically correct. It is known that losses occur before the paper leaves the wire and that stock is removed by the presses, but to get these data the equipment and layout required would be so elaborate that it was considered that the method actually used was correct for practical purposes. Also there was a suction box on the first press, but it was thought to return so little material to the system that the water removed by first press was considered as not going back to the save-all.

The total weight of paper made, including finished paper, dry broke, and wet broke converted to bone dry basis, is considered as having passed through the first press. This amount is 12,133 pounds. When coming off the wire, and before going through the first press, these 12,133 pounds represent 21.15 per cent of the whole, making 57,366 pounds the weight of material going to the first press. After going through the first press the 12,133 pounds represent 29.35 per cent of the whole, making 41,339 pounds the weight of material leaving the first press. The difference between these two weights gives the amount of water removed after leaving the wire and before reaching the second press. This amount is 16,027 pounds, or 1,925 gallons in 7¼ hours (265 gallons per hour, or 6,360 gallons (850 cubic feet) per 24 hours).

Second Press

(*e*) Second Press.—One-half the wet broke was considered as having gone through the second press. There were 11,909 pounds of bone dry paper made, and this, with one-half of the wet broke converted to dry basis (112 pounds), makes the total bone dry paper going through the second press 12,021 pounds. Before going through the second press these 12,021 pounds represent 29.35 per cent of the whole, giving 40,954 pounds as the amount of material going to the second press. After going through the second press this weight of 12,021 pounds represents 33.46 per cent of the whole, making 35,926 pounds the weight of material leaving at this point. The difference between these two weights gives the amount of water removed by the second press in 7¼ hours, 5,028 pounds, or 602 gallons (83 gallons per hour, or 1,992 gallons (266 cubic feet) per 24 hours).

Driers

(*f*) Driers.—The weight of paper made, including the dry broke, was 12,341 pounds, with an average moisture of 3.5 per cent. This gives 11,909 pounds as the amount of bone dry paper made and is also the amount to be considered as total solids going over the driers in 7 hours and 15 minutes, or during the test.

The paper going on to the driers had an average of 33.46 per cent solids. This means that 11,909 pounds is 33.46 per cent of the whole that goes onto the driers. The total weight of material going to the driers is, therefore, 35,592 pounds. The difference between this total weight and the total weight of bone dry paper at the dry end gives the amount of water going to the driers. The amount of water was, therefore, 23,683 pounds (2,833 gallons), but since there were 432 pounds left in the finished paper 23,251 pounds, or 2,786 gallons, is the amount of water evaporated off at the driers in 7¼ hours (384 gallons per hour, 9,216 gallons (1,233 cubic feet) per 24 hours).

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5. Recovery and Clay Retention

The amount of paper made was:

	Pounds
Paper at reel	10,400
Dry broke	1,941
Wet broke	715

This converted to bone dry basis gives:

	Pounds
10,400 pounds × 0.965 =	10,036
1,941 pounds × 0.965 =	1,873
715 pounds × 0.314 =	224
Total	12,133

12,133 pounds × 0.179 (see Table 3) = 2,172 pounds, dry clay in finished paper. The amount of dry clay added to the six beaters was 2,660 pounds. The amount of clay in the 773 pounds of paper broke added to the six beaters was 773 pounds × 0.179, or 138 pounds. 2,660 pounds + 138 pounds = 2,798 pounds (total weight of dry clay added).

$$\frac{2{,}172}{2{,}798} = 77.62 \text{ per cent retention (or recovery) of clay.}$$

The recovery of the total amount of material furnished to the six beaters was:

$$\frac{12{,}133}{13{,}537} = 89.62 \text{ per cent recovery of total furnish.}$$

The per cent recovery of total furnish seems low, but this may be accounted for in either or both of the following ways: A small error in the moisture or the weight of the materials going to make up the furnish of the six beaters or a slight error in measuring the stock in the beater chest or the machine chest at the beginning or the end of the test.

6. Value of a Saveall

Some of the advantages in the use of a saveall are shown in the following: The approximate saving in water can be considered at least as the amount drawn from the saveall in furnishing and washing down the beaters, or 18.7 per cent of the total water used in the run. If fresh water were used in furnishing the beater, and no arrangement were made for using the water from the machine over again, other than for diluting stock coming on to the machine (mill practice), the amount of water going to the sewer would be, on a 24-hour basis (see Table 6):

	Gallons
Overflow from saveall to sewer	363,248
From saveall for furnishing beaters	55,492
From saveall for washing down beaters	32,084
Total (which would have gone to sewer)	450,824

What Analysis Showed

If the water going from the machine to the sewer carried away the same amount of stock per gallon as that now going to the saveall (see Table 4), or 12.6 pounds per thousand gallons, the loss would be 450.8 × 12.6 pounds = 5,680 pounds. Analysis showed that 58.29 per cent (see Table 6) of the stock in the water going to the saveall was clay. If the water going to the saveall were not used there would then be a loss of 3,311 pounds of clay and 2,369 pounds of pulp in the 24-hour run. With the use of the saveall only 363,248 gallons per 24 hours goes to the sewer, and analysis showed it to contain only 0.548 pounds of stock per thousand gallons, thus giving a loss of only 199 pounds, of which 84.53 per cent, or 168 pounds, is clay and 31 pounds is pulp. The returning of water with high concentration of stock from the saveall for dilution purposes before going onto the machine no doubt materially increases the clay retention.

STEAM BOILER AND STEAM POWER INSTALLATIONS IN CANADIAN PAPER MILLS*

The following estimate of boiler horsepower installed in some of the leading industries is based partly on the statistics concerning boiler installations and partly on the coal consumed in raising steam for specific purposes for which information is available.

BOILER HORSEPOWER IN USE IN CANADIAN INDUSTRIES

	Horsepower
1—Steam-electric stations	96,500
2—Industrial steam power plants	662,000
3—Pulp and paper industry	150,000
4—Collieries	81,500
5—Metallurgical industries, steel, copper, nickle, coke plants, etc.	80,000
6—Railway locomotives based on engine power	4,500,000
	5,570,000

Pulp and Paper Industry

Special atttention is given to the boiler installations in this industry on account of the fact that it is rapidly becoming the largest individual user of steam for heating digesters, and drying, and moreover, as a rule, generates steam with economy as regards fuel. Reference to the chart Fig. 1. will show the increase in the growth of this industry in the past and succeeding years. While at the present time the annual consumption of coal for steam raising in the paper industry is approximately one million short tons, a few years' time will probably witness a coal consuption of double this amount.

The heavy demand for steam will be appreciated when it is realized that for every ton of newsprint manufactured from 1,000 to 1,500 pounds of coal and from 10,000 to 13,000 pounds of steam are required. The average coal and steam consumption of seven of the leading mills in Canada is 1,400 pounds of coal and 10,700 pounds of steam. Over one million tons of news print in addition to a large tonnage of sulphite pulp were manufactured in Canada during 1923.

The writer has been informed that Canadian pulp and paper companies are very much interested in anything that promises to reduce the cost of steam used in the process, since the cost of steam is a most important item in the total cost of making paper. Coal and the steam generated by it represents not less than ten per cent and frequently as high as 15 per cent of the total cost of making paper, and if the cost of the wood entering into the process were omitted the steam would represent from 30 to 40 per cent of the cost of the conversion of the raw products into paper. Steam constitutes the second highest single item of cost in the industry. As the industry grows, and it is growing rapidly, the necessity for introducing every possible economy will be more apparent and serious attention will be given to the possibilities offered by further economizing in the generation and use of steam. Low grade fuels will be in greater demand and the most efficient methods for burning them and utilizing the heat of combustion will be employed.

The coal used in the paper and pulp industry is practically all burned under boilers for producing process steam; but little, if any, in the majority of mills, is converted into electric energy, since the mills are generally located on a waterway contiguous to a water power or are within easy transmission distance of a hydroelectric plant. Many of the larger mills have their own hydroelectric plants, and the development of these on a scale commensurate with the future growth of the industry has resulted, in some cases, in the development of a large excess of power which cannot be economically disposed of for power in the neighborhood and must therefore be utilized inefficiently or else wasted. This situation has led to the installation, in some mills, of boilers generating steam from electric energy aggregating several thousand horsepower. The utilization of electric energy for heating is a degradation of energy and is opposed to all principles of efficiency, as the following calculation will show:

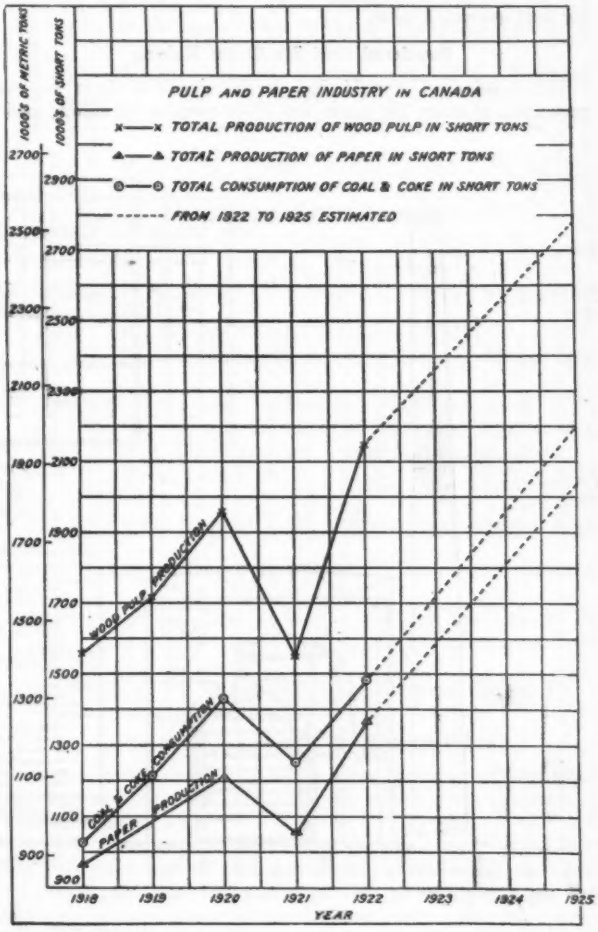

FIG. 1.

Chart Showing Pulp and Paper Production and Coal and Coke Consumed in Pulp and Paper Industry of Canada.

1 e.h.p. hour = 746 watts = 2,544 B. t. u.

Evaporative power of 2,544 B. t. u. = 2.6 lb. of water from and at 212° F. at 100% efficiency.

Evaporative power of 1 lb. of coal of 12,500 B. t. u. per lb. = $\frac{12{,}500 \times 0.7}{970}$ = 9 lb. of water from and at 212° F.

Thus 1 lb. of coal will evaporate 9/2.6 = 3.44 times as much water, assuming a boiler efficiency of only 70 per cent, as 1 e.h.p. hour while 1 lb. of coal is capable of producing only 1 e.h.p. when the coal is converted into a gas and then burned in an internal combustion motor of higher overall efficiency than a steam power plant. In other words, 1 e.h.p. hour of 2,544 B. t. u. as elec-

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* Abstracted from "The Fuel Resources of Canada and Their Utilization for the Production of Power and Other Purposes," by B. F. Haanel, Chief Engineer, Division of Fuel and Fuel Testing, Department of Mines, Ottawa. (*Engineering Journal*, July, 1924.)

trical energy, while 12,500 B. t. u. as coal = 3.44 e.h.p. hours for raising steam.

Generally speaking, electrically generated steam can never play an important part in supplying the steam requirements of any of the Canadian industries, for the reason that electric energy must be available at not more than $10 per kilowatt year in order to equal coal at $6 per ton. Ten dollars is below the profitable selling cost of power and it will only be disposed of at this price when there is no other demand for the surplus power. But as soon as a market is created the price of electrical energy will rapidly mount and electric generated steam will then have to make way for coal generated steam.

Powdered Fuel for Steam Raising

The burning of a solid fuel in the powdered form for the generation of steam for power and other purposes is making rapid advances in the United States and is gaining a strong foothold in Canada, where several steam plants equipped for burning powdered coal are in operation and others in course of erection.

The burning of powdered fuel for steam raising on a large scale is of comparatively recent origin, its development period covering the past decade, and it is only very recently that the method has been sufficiently perfected to permit it to take its place along with the older well tried and long established mechanical stoker. But while all the high grade coals can be efficiently burned in powdered form and also in the solid state on mechanical stokers especially adapted to the grade of coal to be burned, it is in connection with low grade fuels, mine dumps, coals high in ash and sulphur, lignite coals of all grades and peat, that the pulverized coal system may be considered of special interest. The rapid increase in the use of electric power not only for industrial but also for domestic purposes; the advancing price of coal at the mine and the heavy transportation costs when long distances are involved, make it imperative that the most efficient methods be introduced in producing either steam or power from coal.

The necessity for taking the fullest advantage of low grade fuels is more manifest in Canada than in the United States, although even that country is very much alive to the economies resulting from the use of low grade coals, since cost of mining coal is advancing, and transportation costs are not dissimilar to those in Canada. As a matter of fact the first successful system for burning coal in the powdered form in stationary boiler installations of large capacities might be said to have had its development in that country. Fuel in the powdered form has, of course, been used in other countries, notably Sweden, where the system for burning peat powder on the Swedish State Railways, was successfully developed and is, according to the writer's information, in successful operation today. Powdered fuel has also been used in cement works and in metallurgical works prior to its introduction for steam generation, but the writer believes that credit for the pioneer work done in developing systems for burning all kinds of coals in the powdered state in large central stations is due the United States.

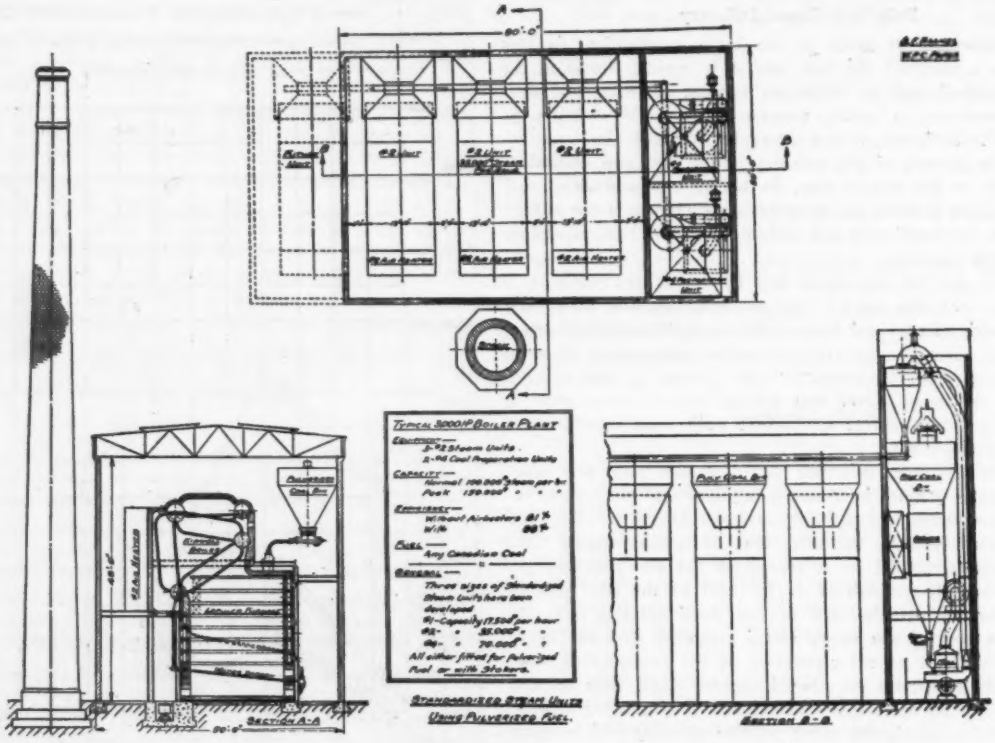

FIG. 2.
Standardized Boiler Plant Using Pulverized Fuel.

Chief Advantages of Powdered Fuel

The chief advantages of powdered fuel generations are:

1. High boiler efficiencies.
2. Efficient utilization of low grade fuels.
3. Efficient use of coals high in ash and sulphur.
4. No difficulties in using fuels with low temperature fusing ash.
5. Flexibility and ease of control.
6. No standby fuel losses.

This system is especially adaptable to lignite coals which slack

on exposure to the weather and in general to all coals which exhibit a tendency to slack as the fuel must be first reduced to 200 mesh before it is in a condition for burning in the powdered form. Fuels unsuitable for efficiently burning under boilers in the ordinary manner can be utilized with the maximum efficiency in the powdered form. The field for powdered fuel is not, however, confined to stationary steam plants. The opportuinty for its successful introduction as a fuel on railway locomotives, in those sections of the country where lignite is the only fuel and which for reasons cited above can not be burned in the ordinary manner, is very considerable. The use of powdered lignites would not only eliminate the fire hazard but would permit the full locomotive power to be developed, which is not feasible where lignite coals are burned on grates. It is the opinion of those who have investigated the lignites of Saskatchewan and southern Manitoba with a view to ascertaining their adaptability for burniing in the powdered state, that the high moisture content of the freshly mined lignite, viz: 30 to 25 per cent, will not have to be reduced to the degree necessary in other coals. Artificial drying, it may be found, can be dispensed with and air drying resorted to for reducing the moisture by the necessary amount. Lignites pulverize readily and this operation is therefore less expensive than in the case of true coals.

In order to meet the demand which exists in the Canadian pulp and paper industry for boiler plants to produce steam at the lowest cost, a Canadian consulting engineer has developed a standardized boiler plant for burning pulverized fuel which may be had complete in multiples of 1,000 horsepower up to a total capacity of 10,000 horsepower or 330,000 pounds of steam per hour. In each of these plants the local preparation section has been designed to give the maximum of capacity and flexibility in the minimum space. The plate Fig. 2 shows a plan and sectional view through a standard plant consisting of four 1,000 horsepower units on continuous rating and capable of developing a total of 6,000 horsepower or 198,000 pounds of steam over 8 hour peak periods. Such a plan complete with all equipment, building and foundations will cost approximately $300,000 ready to operate and will develop its maximum efficiency when producing 150,000 pounds of steam per hour. It will use a low grade of Canadian coal and the wet wood refuse from the barking process in the pulp mill may be burned simultaneously in the same furnaces.

Pacific Mills Paper Co., Ocean Falls, Vancouver, B. C.

The power plant of this company consists of four 504 horsepower Badenhausen, two 286 horsepwer Babcock and Wilcox, two 572 horsepower Stirling, six 159 horsepower Casey Hedges, six 162 horsepower Casey Hedges, and one 163 horsepower (maker not known). The first eight boilers are all equipped with type "E" underfeed stokers. Fuel oil has been used more or less extensively on the British Columbia coast for steam raising but it has been determined at this plant that fuel oil must be obtainable at less than $1.50 per barrel in order to equal coal at $6.40 per ton. The coal at present burned in this plant is obtained from the mines on Vancouver Island and costs less than the above amount. Oil is therefore not used. This is said to represent the most efficient paper mill boiler installation in Canada.

Spanish River Pulp & Paper Co., Sault Ste. Marie

This steam boiler installation is merely mentioned on account of the fact that in addition to coal, about 100 cords a day of wood refuse is burned during the summer months. This particular plant consists of water tube boilers capable of developing 7,000 to 8,000 horsepower continuously. All the steam is used for processing.

New Members of TAPPI

Since the last announcement was made the following have been admitted to the membership of the Technical Association of the Pulp and Paper Industry:

Harry Bennett, Valley Iron Works Company, New York, N. Y.

Donald E. Cable, Oxford Paper Company Laboratories, Brooklyn, N. Y.

Roy C. Charron, United States Envelope Company, Worcester, Mass.

C. J. Christiansen, Fibre Making Processes, Inc., Chicago, Ill.

Henry U. K. Chung, Linstead & Davis, Hong Kong, China.

Alden W. Field, Lincoln Paper Mills, Elkhart, Ind.

Saxton W. Fletcher, J. O. Ross Engineering Corporation, New York, N. Y.

Ralph S. Frobisher, Eddy Paper Company, Three Rivers, Mich.

C. S. Gravatt, Western Union Telegraph Company, New York, N. Y.

John A. Hanson, Menasha Printing and Carton Company, Menasha, Wis.

Albert H. Hooker, Jr., Hooker Electrochemical Company, New York, N. Y.

Albert H. Hooker, Sr., Hooker Electrochemical Company, Niagara Falls, N. Y.

Stuart E. Kay, De Grasse Paper Company, Pyrites, N. Y.

J. R. Kessler, Dill & Collins Company, Philadelphia, Pa.

K. Hv. Knudsen, 104 John street, New York, N. Y.

Maurice N. Labelle, Chemical Paper Manufacturing Company, Holyoke, Mass.

John S. Little, Western Electric Company, Chicago.

José de la Macorra, Jr., San Rafael Paper Company, Mexico City, Mex.

Edgar L. Moulton, Rand Company, Inc., North Tonawanda, N. Y.

James Murray, Appleton Coated Paper Company, Appleton, Wis.

Sigurd Norman, Munising Paper Company, Munising, Mich.

A. E. J. Parrett, Canada Paper Company, Ltd., Windsor Mills, Que.

B. K. Steadman, Standard Paper Manufacturing Company, Richmond, Va.

A. J. T. Taylor, Combustion Engineering Corporation, Toronto, Ont.

Howard G. Walker, Western Electric Company, Inc., Chicago, Ill.

Robert S. Wertheimer, Thilmany Pulp and Paper Company, Kaukauna, Wis.

Edgar Winne, Individual Drinking Cup Company, Easton, Pa.

Improved Type of Flat Screen Plate

Much interest is being given a New Type of flat screen plate which is being manufactured by the Fitchburg Screen Plate Company, of Fitchburg, Mass.

This plate has several improvements and advantages which have been patented. By an improved method of machining the plate, longer slots are obtained which gives these plates about 25 per cent greater screening capacity without increasing the number of slots per plate. The slots are so constructed as to give the diaphram suction a better chance to keep the slots clean.

Tests have proven that this plate will not plug up or form strings as much as the old style plate. Its advantage especially in sulphite mills, is the possibility of using finer cut plates. This has worked out to advantage in several large sulphite mills. The greater capacity of the plates compensates for the finer cut slots. These plates are made to fit into all standard screens without any change whatever.

Determining Strength of Paper Fibers

WASHINGTON, D. C., October 29, 1924.—In connection with a general study of control of paper manufacturing processes, which is being made by the Paper Laboratory of the Bureau of Standards, apparatus for determining the strength of papermaking fibers is being developed. It is understood that a report has been prepared which contains descriptions of a sheet mould for making uniform fiber sheets and a press for applying uniform pressure to the sheets.

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CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

CLARENCE J. WEST, CHAIRMAN

Electricity in Paper Making

Load Regulator for Electric Motors Driving Wood Grinders. V. Sylvestre. *Papeterie* Special No., 147-164 (Dec., 1923-Jan., 1924). A detailed description of the regulator of the Cie. Electro-Mécanique (Paris, France), which consists essentially of a valve (either balanced or unbalanced) which regulates the hydraulic pressure with which the wood in the pockets is pressed against the stone, and which is operated by a rotating magnet by means of an eccentric. The magnet in turn is controlled by a Brown-Boveri quick-acting regulator, which acts by variation in the voltage and amperage of the motor driving the grinder. Changes in the load on the motor act on the regulator which operates the valve in such a manner as to change the hydraulic pressure and restore the load to its former value. The load is maintained contant to ±8 per cent.—A. P.-C.

Electric Sectional Drive for Paper Machines. O. C. Cordes. *Paper* 34, No. 5, 185-189 (May 22, 1924). A discussion of fundamental requirements of a successful electric sectional paper machine drive, with a description of the Westinghouse drive showing how it fulfills the requirements.—A. P.-C.

Electric Maintenance in Paper and Pulp Mills. H. L. Hayes. *Paper Trade J.* 78, No. 15, 175-177 (Apr. 10, 1924); *Paper Ind.* 6, 717-175 (Apr., 1924); *Paper* 33, No. 26, 102, 104 (Apr. 17, 1924). A discussion of its value in preventing breakdowns and in prolonging the life of equipment.—A. P.-C.

Turbines vs. Motor Generators. F. O. White. *Paper Trade J.* 78, No. 15, 184 (Apr. 10, 1924); *Paper Ind.* 6, 189-191 (Apr., 1924). A comparison of the relative merits of a steam turbine and a motor generator as prime mover for a paper machine equipped with a sectional electric drive, based on figures obtained from the operation of two 160 inch news print machines running at 800 ft. per min. The author concludes that with prevailing prices in most cases the turbo-generator is likely to be the more economical, except where water power is cheap and plentiful and coal expensive.—A. P.-C.

Machinery

Hand or Machine Barking. H. Fay. *Wochbl. Papierfabr.* 55, 788 (Apr. 5, 1921). An investigation is reported on hand and machine barking of logs varying in diameter from 7 to over 16 cm. The average loss in weight due to machine barking was 13.5 per cent; and for hand barking the average loss was 8.35 per cent. The cost of barking is somewhat less by hand according to data given.—J. L. P.

Barking Drum. H. Guettler assignor to Fibre Making Processes. U. S. pat. 1,463,887, Aug. 7, 1923. The drum is supported and rotated by means of endless chains which engage rings circumferentially secured to the drum and which pass over sprocket wheels supported on a suitable frame. One set of sprocket wheels is mounted on a common shaft carrying a larger sprocket wheel adapted to be driven from a suitable source of power. The other sprocket wheels are mounted on independent axles which are journalled in take up bearings by means of which the slack of any chain may be taken up, thus insuring that the load will be evenly distributed to all the chains. The rings with which the driving chains engage have a smooth surface so that the chains may slip if any obstruction should prevent rotation of the drum. Guide rings and flanges engaging grooved guide rollers prevent lateral swinging or upward jumping of the drum. Paddles are attached to the outer surface of the drum for sweeping up the bark which passes through the openings and discharges it over the side of the tank, the height of which is adjustable for adjusting the level of water so that it will just prevent the floating of the logs, thereby relieving the chains as much as possible. The amount of wood in the drum can be controlled by adjusting the height of the dam at the discharge end.—A. P.-C.

Rossing Machine. E. Berthiaume and A. Berthiaume, assignors to O. Brouillard. U. S. pat. 1,465,621, Aug. 21, 1923. In order to make up for the decrease in the diameter of the log owing to the action of the knives, as it progresses through the machine, the diameters of the rolling and feeding disks and wheels are gradually increased so as to maintain a uniform and steady rate of progression and a proper relation to the barking knives. As the forward end of the log may have a tendency to deviate towards the knives, the rolls on the same side as the knives are somewhat displaced towards the center of the machine so as to press more firmly against the butt of the log and keep it in a true course.—A. P.-C.

Wood Chipper. D. C. Andrews. U. S. pat. 1,464,690, Aug. 14, 1923. The wear plate which is generally provided at the bottom of the spout in contact with the bed knife is entirely eliminated. The bed knife is made quite thick and is so ground that when it is placed in position in the machine the upper active face is parallel with and forms a substantially continuous extension of the inner face of the feeding spout. The position of the bed knife is adjusted by means of screws having ball and slot connection with the knife and engaging screw threads in the bed plate. It is claimed that the amount of "sawdust" and slivers is only about 1/5 what it is with the usual type of bed knife and wear plate.—A. P.-C.

Apparatus for Preparing Straws, etc., for Digesting. S. Milne. Eng. pat. 209,608, Jan. 25, 1923. Grasses such as esparto, straw, etc., are fed by a conveyor having projections to two or more sets of circular cutting knives meshing into each other and mounted on shafts. After cutting the material passes to a revolving drum fitted with spikes by which it is fed over a screen to a conveyor and delivered to the digesters. The knives are interchangeable and wider or narrower knives can be used to suit the required length of cut of the grass. One knife on each shaft is fixed and the others splined to allow the knives of one set to adjust themselves to the knives of the other set. One or both of the shafts may be adjusted longitudinally.—A. P.-C.

Lost Continuous Centrifugal (for Separating Digester Liquor and for Screening). John W. Brassington. *Pulp & Paper* 22, 535-540 (May 22, 1924). A discussion of the possibilities of the principle of the continuous centrifugal as applied in the manufacture of pulp, with a description of a digester liquor separator and of a pulp screen based on the principle.—A. P.-C.

Pulp Dehydrator. R. A. North, assignor to E. P. Smith. U. S. pat. 1,463,721, July 31, 1923. A cylindrical wire-covered drum rotates in a semi-cylindrical tank, but is mounted eccentrically so that the passage between the drum and the bottom of the tank gradually decreases from the inlet to the outlet side. The slush pulp is fed into this passage and the water passes inside the drum whence it is removed by means of a suitable pipe. The stock is held back by the screen and is discharged at the outlet end. The outside surface of the drum is provided with "stock pushers" which prevent accumulation of the pulp from blocking the discharge outlet. A spray plays on the outside of the screen just beyond the outlet to remove the accumulated stock, and another spray plays on the inside of the screen just before it reaches the inlet so as to thoroughly clean the screen.—A. P.-C.

Inward Flow Rotary Screen. R. S. Clark, assignor to Bird Machine Co. U. S. pat. 1,468,875. Sept. 25, 1923. The screen is provided with means, such as a series of outwardly projecting ribs or baffles, which in a sense produce a series of compartments, which subdivide and confine the charge, preventing flow of the pulp along

the screen surface and causing it under the action of the vibration of the vat to move inwardly at more nearly right angles to the screen surface than would otherwise be the case. It is claimed the capacity of the screen is thus increased without any measurable increase in power consumption.—A. P.-C.

Experiments with a Cylinder Pulp Thickener. A. Malinovski. *Bum. Prom.* (Russia) 2, No. 6, 648-652 (1923). Raising the level in the vat of the pulp thickener increased the loss of fiber in the waste water. Lowering the density of the pulp going to the cylinder from 0.30078% to 0.25612% increased the loss in the waste waters by 11.6%. Speeding up the cylinder resulted in greater loss of fiber in the waste water. The loss of fiber is least when the liquid enters the vat on the emerging side of the cylinder.—M. L. C.

Practical Notes on Paper Mechanics. Anon. *Indus. Del Carta*, Jan. 31, Feb. 29 and Mar. 31, 1924. The scope of this work is indicated by the sub-title "Generalities on the Strength of Materials." It treats of the stretch tension of machine wires, compression of the wire, and load on the bearings. The elongation of the wire and its breaking strength are estimated, but the theoretical conditions of the experiments do not correspond with the complex conditions of actual running tensions.—P. B.

Special Soft Rubber Rolls for Paper Machines. R. H. Whitney. *Paper Ind.* 6, 118-119 (Apr., 1924); *Paper Trade J.* 78, No. 15, 192-193 (Apr. 10, 1924); *Paper* 33, No. 26, 130, 132 (Apr. 17, 1924); *Paper Mill* 48, No. 15, 74, 76 (Apr. 12, 1924); *Pulp & Paper* 22, 468-470 (May 1, 1924). A comparison of ordinary rubber covers and of the recently developed so-called "high speed news" cover, bringing out the superiority of the latter. It is claimed that they do not corrugate quickly, remove the required amount of water and pave the way for taking out more water, cut down felt washing, increase felt life, decrease felt marking, allow of the use of more open and tougher felts, and make higher speeds and more continuous production possible. Comparative figures are given which are taken from actual mill operations.—A. P.-C.

Function of Couch Rolls. F. Venneman. *Mon. Papeterie Belge* 4, 107-113 (Mar. 1924). A discussion of the mechanism of water removal by the couch rolls, bringing out more particularly the advantages of the system using suction in the upper roll to dry out the jacket and allow of better removal of the water from the sheet when this roll is set back a few inches from the lower couch roll.—A. P.-C.

Kilberry Suction Rolls at Laurentide Co. George D. Kilberry. *Paper Trade J.* 78, No. 14, 85 (Apr. 3, 1924). In this roll trouble from packings, grooving of the shell, etc., are eliminated by making the suction box just clear the shell. When used as suction press roll it has successfully withstood a pressure of 150 lb. per lineal inch, and it has run with as high a vacuum as 19 in., showing that there were no large volumes of air passing through the sheet or between the shell and the lip of the suction box. Self-aligning bearings 11 in. in diameter for the 22 in. roll prevent excessive bearing friction when the machine is run at 1,000 ft. a min. Power consumption and upkeep are reduced to a minimum, and it is the nearest fool-proof piece of machinery put into a paper mill so far.—A. P.-C.

Guard Board for Papermaking Machines. H. M. Ashley. Eng. pat. 201,895. This guard board for cleaning felt-jacketed couch rolls comprises a rigid back board, having a vertically movable jacket on it, which is pressed against the surface of the roll. The thickness of the blade is equal to the width of the bearing edge, which will cooperate most efficiently with the felt jacket of the couch roll, so that as the blade wears away a uniform and efficient width of bearing edge is maintained in cooperative engagement with the felt jacket.—A. P.-C.

Draining Bucket for Drying Cylinders. G. P. Roberts, R. R. Roberts, Ltd., Eng. pat. 208,732. The improved bucket is cast integral with the end of the cylinder. In a modified construction the discharge ends of the pipes which collect the water do not cross the axial line of the trunion but stop short of it to allow for a partition plate arranged longitudinally to the axial chamber and in line with the axis of the trunion.—A. P.-C.

Paper Reeling. W. J. Pitts. Eng. pat. 208,814. Grooves are made throughout the length, or a portion of the length, of the reeling bar. The collars which slide along the bar have projections which fit into the grooves, so that a better grip is ensured and the reel is maintained in the proper position during winding.—A. P.-C.

Paper Machine Apron. C. C. Clutch. U. S. pat. 1,466,120, Aug. 28, 1923. The apron is supported on two brackets, one on each side of the machine, having longitudinal slots in both vertical and horizontal arms, permitting of both vertical and horizontal adjustment of the position of the apron. The apron board itself is built of three pieces, the wings being made to overlap the central portion, the latter being in a fixed position relatively to the axis of the machine, while the wings can be adjusted transversely according to the width of the sheet being made. The various adjustments can be made while the machine is running.—A. P.-C.

Paper Trimming Machine. C. Seybold and Wm. L. Valiquette assignors to The Seybold Machine Co. U. S. pat. 1,469,733, Oct. 2, 1923. The invention relates to a machine for trimming bundles of papers in which the latter with each single operation of the machine are trimmed on both front and side edges and delivered from the machine so that the operation is continuous. The cutting table is rotated on a horizontal axis with the four cutting stations in planes at right angles to one another and the clamping devices for applying clamping pressures for the cutting operations are entirely independent of the knife movements. The piles at the loading station are adjusted vertically so that the backs of the packages can be readily jogged into alignment; the trimmings are automatically carried to one station for removal and the completely trimmed bundles are delivered at the lowermost station whence they are removed by a suitable conveyor.—A. P.-C.

Calenders for Glazing Paper. C. Hanbold. Eng. pat. 210,262. These improved rolls are made of case-hardened steel, and are of relatively small diameter as compared to their length, so that rolls five meters long and less than a third of a meter in external diameter can be used. This enables paper of great width to be calendered without dividing, while a saving of time and steam is effected and, owing to the reduction in weight, less driving power is required.—A. P.-C.

Automatic Winding and Measuring Machine for Prepared Roofing. H. A. Cumfer, assignor to Guyton & Cumfer Mfg. Co. U. S. pat. 1,467,841, Sept. 11, 1923. The machine is so constructed that the finished roofing is wound into rolls of predetermined length, the sheet being cut off automatically when the desired length has been wound, the wound roll being discharged and other rolls being successively wound in the same manner.—A. P.-C.

Folding Paper Sheets. G. N. Wilford, A. G. Day and C. H. Darnell. Eng. pat. 206,870. The folding machine comprises a number of folding tablets, each provided with feeders and folders and each rotable about a vertical axis. The folders are connected by chutes through which the sheets are fed from one to another. The folders are adjustable to enable the direction of the fold to be varied.—A. P.-C.

Camachine "Score-Cut." James A. Cameron. *Paper* 34, No. 2, 40, (May 1, 1924). A discussion of its advantages as applied to slitting and roll winding machines.—A. P.-C.

Gummer and Cutter for Cardboard. L. Chambon. Eng. pat. 196,592. A continuous sheet of paper passes in front of a gumming roller which traces longitudinal tracks of gum over its surface. The sheet passes to a drying cylinder and thence to a cutting cylinder which severs the strips through the middle of the gummed tracks so as to form parallel strips of which the two edges are gummed.—A. P.-C.

Combined Coating and Winding Machine. J. J. Weldon, assignor to General Electric Co. U. S. pat. 1,469,128, Sept. 25, 1923. Powdered shellac is fed on to the paper which is then passed over

a heated plate where the shellac melts. The paper then passes over a heated roll and then to a winding roll or mandrel on which it is wound into desired forms, such as cylinders, cores, etc. The whole apparatus is arranged so that both coating and winding can be watched by a single operator.—A. P.-C.

Felts

Paper Machine Felts and Press Rolls. H. F. Obermanns. *Wochbl. Papierfabr.* 55, 519-521 (Mar. 8, 1924); *Paper*, 33 No. 26, 174, 176 (Apr. 17, 1924). The use of soft rubber for lower press rolls on the paper machine has proven successful in American practice. Such rolls make possible the use of coarser felts, without danger of felt-marking, and increase their life by 50%. The use of the plastometer for measuring the plasticity of rubber is described. Stone appears to be preferred for the top press roll, but rubber gives good results when the stock is free. Wooden press rolls do not always give a smooth surface, and it is difficult to maintain good fitting doctors on the rolls.—J. L. P.

Asbestos Drier Felt Introduced. *Paper* 33, No. 26, 40 (Apr. 17, 1924). Outline of its merits. It is giving 50% to 100% longer service than woolen felts and is expected to have several times the life of canvas felts.—A. P.-C.

Vickery Felt Conditioner. Phillips Dennett. *Paper* 34, No. 2, 43-44 (May 1, 1924). A description of the machine, its method of operation and its merits.—A. P.-C.

Adaptors for Paper Mills. *World's Paper Tr. Rev.* 80, 1640, 1642 (Nov. 16, 1923). A description of the Knowles dandy roll adaptor, consisting essentially of a rigid interchangeable cover in the form of a cylinder arranged to be fitted on to a mandrel, and of its merits.—A. P.-C.

Effect of Kerosene on Strength of Wool Felts. Geo. B. Haven. *Alfelco Facts*: *Pulp & Paper* 22, 388 (Apr. 3, 1924). Use of kerosene on the selvages of paper machine felts to prevent curling increases stretch without impairing tensile strength.—A. P.-C.

Hair Felts. F. Reddaway. Eng. pat. 208,610. This improved felt has a hair warp and a cotton weft, and is so woven that the hair is on the surface and carries the pulp. The felt is far more durable than one composed of cotton, which is soon destroyed by the deleterious matter in the pulp.—A. P.-C.

Thoughts on Felt Usage. *Paper Mill* 48, No. 11, 28, 30 (Mar. 15, 1924). A general discussion of the human element in the handling of felts.—A. P.-C.

Measuring Water Removed from Paper by Presses. E. J. Wilson and E. A. Reese assignors to F. C. Huyck & Sons. U. S. pat. 1,483,961, Feb. 19, 1924. A trough is placed under the lower roll of the press and a doctor blade engages the lower roll near the nip of the press and delivers the water removed from this point into an auxiliary inclined trough from which it passes into the main trough. The water is discharged through a recording flowmeter. Any or all of the presses may be equipped with the device. This allows of adjusting pressure on the rolls so as to obtain most efficient removal of water, and also allows of determining the efficient life of felts, the character of felt which may be the most economically used in the manufacture of a given grade of paper, and when a felt has become so worn that it can no longer be used economically.—A. P.—C.

Device for Washing Paper Machine Felts. Heinrich Jotzen. Ger. pat. 376,701. *Papierfabr*, 22, Tech.—Wiss. Teil 86-87 (Mar. 2, 1924); U. S. pat. 1,478,712, Dec. 25, 1923. A trough-like device, which is divided into two compartments, contains a cleaning liquid through which the felts are passed twice. Agitators are so arranged as to aid in the washing operation.—J. L. P.

Treating Paper Machine Felts. Wm. R. Howard, assignor to F. L. Bellknap. U. S. pat. 1,482,012, Jan. 29, 1924. The felt is passed through a suspension of clay and water to prevent particles of substances such as tar or asphalt used for waterproofing from adhering to it.—A. P.—C.

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Savealls

The Dorr Saveall. M. C. Fleming. *Paper Trade J.* 78, No. 15, 199 (Apr. 10, 1924); *Paper Mill* 48, No. 15, 164, 184 (Apr. 1924). The apparatus is arranged so that it can be considered as a number of shallow settling tanks or compartments, one above another, each with a peripheral outlet arrangement for the clarified water but with a common central feed, and a common outlet at the bottom for the slurry containing the recovered stock. Each settling compartment has a slightly sloping bottom and is equipped with slowly rotating arms to which plows are attached which collect and move the settled stock to the center. Machines in actual operation handling about 240,000 gal. of white water averaged about 97% recovery for several months. Power requirements are very low, and attention and repairs practically negligible.—A. P.-C.

White Water Economy. L. M. Booth. *Paper Trade J.* 78, No. 15, 217 (Apr. 10, 1924); *Paper Mill* 48, No. 15, 80 (Apr. 12, 1924); *Paper* 33, No. 26, 39 (Apr. 17, 1924). Brief outline of the merits of the Boothal coagulation process of treating white water, whereby a 100% recovery of fibers and high degree of purification of the white water for reuse are claimed.—A. P.-C.

Improved Saveall. G. W. Brown, assignor to Inland Empire Paper Co. U. S. pat. 1,480,500, Jan. 8, 1924. The device consists of an inclined screen, the lower edge of which is so supported that the angle of the screen can be adjusted according to the nature of the pulp under treatment. The upper part of the screen is 100 mesh, while the remainder is 60 to 70 mesh, and in order to keep the fine screen open a shower pipe is placed back of this portion of the screen. White water flows on to the screen through discharge gates in the upper flume. The merits are simplicity, durability of construction, and it is not likely to get out of order and requires no power except for running the conveyor to carry off the recovered stock.—A. P.-C.

Boards

Use of Water Glass in Manufacture of Pulp Board. Nikolaus Sandor. Ger. pat. 389,536. *Papierfabr.* 22, Tech.-Wiss. Teil 84 (Mar. 2, 1924). In the manufacture of pulp board quantities of water glass are added to the extent of 10% of the weight of the pulp. Three or more sheets of pulp board, of which the inside ones are more porous than the outside layers, are glued together with water glass.—J. L. P.

Stamped Pasteboard. Anon. *Papierfabr.* 22, Tech.-Wiss. Teil 69-71 (Feb. 24, 1924). For pasteboard to receive a good impression when passed between rollers the pulp should be plastic and yet hard enough to retain the impressed design. The suitability of various pulps is discussed. The best material is old paper, free from groundwood. The stock should be left unsized as sizing makes the product too hard. Cylinder machine operation is described.—J. L. P.

Waterproof Corrugated Pulp Board. A. Cole. Eng. pat. 209,144. A paper sheet coated with waterproof adhesive is attached to the corrugated board. Other paper backings may be supplemented. —A. P.—C.

Cloth Boards. H. B. Smith. Eng. pat. 209,208. Cloth boards are used as centers on which cloth is wound for shipment. According to the present invention it consists of a core formed of two or more separate and superimposed sheets of corrugated material, having one or more separate plain facing sheets interposed between and adhesively secured to each two adjacent sheets of corrugated material and a plain envelope or covering adhesively secured about the core. The core is usually some comparatively cheap grade of corrugated fiber board.—A. P.-C.

Cloth Boards. H. B. Smith. Eng. pat. 209,854. This is an improved method of producing cloth boards by a continuous operation. Some of the fibers of the boards are longitudinal, while others are transverse, so as to give laternal stiffness necessary to resist compression strains of heavy fabrics. A number of layers of pulp board are compressed together and covered by outer layers which wrap around them.

PRODUCTION OF PULP FROM BORDEAUX PINE*

R. MICHEL-JAFFARD

(NOTE: Though the investigations reported in this article were carried out by a French technologist with a view to making France more independent of foreign pulps, of which it imports very large quantities, the results are of great interest to the American paper industry. As will be seen, Bordeaux pine (*Pinus maritimus*) has practically the same characteristics, from a paper making standpoint, as longleaf pine, which is gaining in favor as a raw material for paper. The results reported herewith are therefore strictly applicable to longleaf pine.—*Translator.*)

Description of Bordeaux Pine

Bordeaux pine, the source of French rosin and spirits of turpentine, is found abundantly in certain parts of France, especially in the south-west, and the stands are so extensive that they would be sufficient to supply the total requirements of the French paper industry for wood pulps. It is really surprising that little or nothing has been said of this most abundant and interesting material while so much time and energy was wasted on a wide variety of material which could not be of the least interest to the paper industry. We can find no explanation for this, except by attributing it to prejudice; but we are confident that we can easily and effectively dispel this prejudice by a rational study of the properties of this wood, of the processes which could be applied to it, and of the by-products which would be obtained.

Bordeaux pine is a tall tree, 20 to 30 meters high and 4 to 5 meters in circumference, which is found especially in Western Europe. The wood is similar to that of other pines and differs from that of balsam and spruce in that the heartwood is reddish and is harder and more resistant to the action of chemicals and of bacterial agents than the sapwood.

Chemically, the most important characteristic of this wood is its high resin content, which reaches 8 per cent in untapped trees or in parts of tapped trees at some distance from the tap-hole, as compared with about 1 to 3 per cent in balsam, Scotch fir and spruce. The resin content in the neighborhood of the tap-holes is much higher, going up to about 15 per cent. The cellulose content on the dry resin-free wood is about 50 per cent.

The most important properties for the paper maker are those of the ultimate fibers, and more particularly their dimensions. Contrary to other writers, we have found Bordeaux pine fibers to be of practically the same size as balsam and Scotch fir fibers. They average about 3 mm. in length and 0.04 mm. in diameter. And the only difference in the appearance of the fibers of these different woods lies in the presence, in pine fibers, of small holes or "pits," which are more marked in Scotch fir than in Bordeaux pine, and which are entirely absent in spruce and balsam.

Suitability for Making Pulp

First of all, it must be considered that there are three main classes of pulps:

1. Mechanical pulp, or groundwood, in which the fibers are separated entirely by means of mechanical power, by pressing the wood against a grindstone sprayed with water.
2. Semi-chemical pulp, in which mechanical treatment is preceded by steaming which partially dissolves the incrusting matter.
3. Chemical pulp or cellulose, in which a chemical process is used for isolating the fibers.

The first class of pulp contains practically all the resin originally present in the wood, and in this case the high resin content of Bordeaux pine would cause endless pitch trouble on the paper machine.

In the manufacture of semi-chemical pulp part of the resin melts and can be withdrawn, and some of the more volatile constituents are entrained by the steam; but there would doubtless remain a considerable proportion of the resin. Moreover, there is but a limited market for this grade of pulp.

Hence, there is but little chance of using Bordeaux pine for the manufacture of either of these two grades.

Suitability for Chemical Pulp

It has repeatedly been said that the high resin content prevented the proper cooking of Bordeaux pine; but that it quite false. For very fine pulp can be obtained from it by some of the older processes which have been applied to other woods, provided a suitable process and proper conditions are selected. And new methods which have been perfected within the last few years also appear promising for the treatment of this wood.

The most widely applicable process for the production of pulp from all kinds of vegetable materials, from wood down to grasses, consists in cooking with caustic soda. The alkali in the waste liquor is recovered by evaporating and calcining the black liquor, and caustifying the resultant soda ash with lime. Losses of alkali are made up by adding fresh soda ash before caustifying; but in the sulphate process these losses are made up by addition of sodium sulphate, which is reduced to sulphide during the recovery process. Either one of these processes can give two distinct grades of pulp, according to the conditions under which it is carried out: easy bleaching pulp by thorough cooking, and hard, extra strong pulp, generally known as "kraft," by a less complete digestion.

There is nothing to show offhand that these alkaline processes cannot be applied to Bordeaux pine. The alkali is a good solvent for the resins, and the process has been used for some time on Scotch fir, especially for the production of kraft. Our experiments have confirmed the suitability of these processes.

As we have already mentioned, little or nothing has been said of the use of Bordeaux pine in paper making. A few cooking experiments by the soda process seem to have been carried out at various times in France, and more particularly during the war; but nothing was published prior to our recent articles. On the other hand, the United States Forest Products Laboratory has published the results of some very interesting investigations on longleaf pine and other southern pines from which are produced rosin and turpentine.

Work Done in the United States

The Forest Products Laboratory has shown that these woods could be treated by the processes generally used for the production of easy bleaching poplar soda or of kraft from Scotch fir.

Cooking is preferably carried out under high pressure (7 kilos), the amount of alkali used being higher for the production of easy-bleaching pulps (about 22 per cent for kraft and 30 per cent for easy-bleaching), and in both cases being considerably greater than the amount actually consumed. The sulphate cooks were carried out with a liquor containing about 2 parts of caustic soda to 1 of sodium sulphide, which is the proportion generally used in commercial operations. The time naturally depends on the quality of the pulp, but, other conditions being equal, it was much shorter for the sulphate cooks than for the straight soda cooks. In the kraft tests best results were obtained by cooking 6 hours with a soda liquor and by cooking 3 hours with a sulphate liquor. Easy-bleaching pulp required a 5 to 6 hour cook.

The yields were of the same order as those obtained from other woods: 35 to 40 per cent of easy-bleaching pulp, and about 45 per cent of kraft in the tests which gave the strongest pulps. In the latter case the yields can be increased, but at the expense of quality.

Easy bleaching pulps required from 14 to 45 per cent of bleaching powder for the production of pulp which, though it was not snow white, was sufficiently white for ordinary grades of book paper.

The kraft tests gave pulps equal in all respects to the best Swedish

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krafts. The strength depends largely on the degree of beating, which must be increased with the undercooked pulps, but should not exceed a certain maximum value in each case.

Alkaline Treatment for Easy-Bleaching Pulp

We have investigated the possibility of obtaining similar results with Bordeaux pine. We used a 30-liter double-walled autoclave, equipped with pressure gauge, thermometer, and relief valve, and heated by passing steam between the double walls. After a few tests we found it necessary to add a liquor relief.

The tests were carried out with wood about 20 to 40 years old from the Nérac region.

After digestion, the pulp was washed in the digester with hot water until the wash water came through colorless, and was then defibered in a 17-liter beater where it was given a final washing.

In the production of easy-bleaching pulp we cooked under a pressure of 7 to 7.5 kilos, both by the soda and by the sulphate process, which is the usual pressure for commercial cooks. We investigated more particularly the proportion of alkali, the concentration of the liquor, the time of cooking, and the washing of the stock.

The bleaching treatment was made as mild as possible to avoid degrading the cellulose. Special tests were carried out to determine the most suitable bleaching conditions, and the procedure adopted consisted in allowing the stock to stand in contact with the bleach liquor, preferably in a closed vessel and at a medium temperature, until all the chlorine was consumed.

We found that, in order to obtain maximum whiteness with minimum chlorine consumption, a large amount of alkali was required, about 30 per cent, which is considerably more than is actually consumed during digestion, the latter being only about 15 to 20 per cent, calculated on the dry wood. The concentration, which also has considerable effect on the results, should be about 6 per cent. For sulphate pulp, the most satisfactory composition of the alkali was 23 parts of caustic to 7 parts of sodium sulphide, which is quite generally used in the commercial manufacture of this grade of pulp. For the soda cooks, two hours is required for going up to pressure, and cooking was then continued for 6 hours more; while for sulphate cooks 1½ and 4½ hours were required, respectively.

It is important not to let the waste liquor cool down, nor to let it come in contact with the air, before separating it from the pulp, and it must be discharged under pressure. Otherwise, the coloring matter held in solution by the liquor is partially reprecipitated on the fibers.

With more drastic treatment, the yield is reduced, but it is higher with the sulphate than with the soda cooks. The latter gave about 35 per cent, and the former 39 per cent.

With 15 per cent of bleaching powder (calculated to a 33 per cent available chlorine content) a slight creamy white was obtained, which was quite suitable for most purposes. More drastic treatment does not seem to give much better results. Under these conditions, the sulphate bleached better than the soda.

These results are comparable to those obtained commercially with aspen. The yields, however, are slightly lower than with aspen, especially in the soda cooks, and bleaching somewhat harder, as had already been observed with other resinous woods.

The unbleached pulps are exceptionally pure, containing 92 per cent of normal or alpha-cellulose, as compared with 98 per cent for cotton and 87 per cent for sulphite. The cellulose, however, is very easily degraded by bleaching; but with care it is possible to obtain bleached pulps containing 83 per cent of alpha-cellulose.

Kraft Pulps

Kraft pulps were prepared in a similar manner, but by operating under milder conditions. In the soda tests the pressure was kept constant at 7 kilos; but in the sulphate cooks it was varied from 6 to 8 kilos. The proportion of alkali in the former was kept at 20 per cent on the weight of the wood, and in the latter case it was 15 per cent caustic and 7.5 per cent sodium sulphide.

We studied the effects of strength of the liquor, pressure, time and nature of beating, which latter has a very considerable influence on the strength. We tried both stone and bronze rolls, and followed the freeness of the stock by means of an instrument which we constructed ourselves and which was based on the principle of the Schopper-Riegler tester.

The strongest pulps were obtained in yields comparable to sulphite yields, namely 40 to 50 per cent, and under milder conditions than those which the Forest Products Laboratory found most suitable for longleaf pine. When conditions are changed so as to give either higher or lower yields, the strength of the pulp decreases. On the whole, the sulphate cooks gave stronger pulp than the soda cooks.

The strength of the pulp increases with beating, reaches a maximum, corresponding to an approximately constant freeness, and then decreases. Care must be taken not to cut the fibers. Maximum strength was obtained by keeping the roll down so as to almost touch the bedplate; and even under these conditions it required 2 hours, in spite of the very rapid circulation in our small beater.

We compared our pulps with Swedish krafts which were beaten in exactly the same manner, and we found that Bordeaux pine could give just as strong pulps by the sulphate process with a 5 per cent liquor, taking an hour and a half to come to a pressure of 6.5 kilos, and then cooking another hour and a half at that pressure. The average breaking length of our strongest kraft was 8,860 meters, while for three brands of commercial pulps we found 7,570, 7,920 and 9,290 meters respectively. The pine krafts were practically as flexible as the Swedish pulps, and considerably more so than sulphite. The yield, 44 per cent, was strictly comparable to that which prevails in the manufacture of high grade kraft.

We noticed, both in the easy bleaching and in the kraft tests, that the most resinous portions of the tapped wood gave lower yields than the remainder of the wood, or than the untapped wood; but this is due to the fact that the yields are not calculated on the resin-free wood.

Our tests show quite conclusively that Bordeaux pine can give excellent pulp by processes which have long been known and applied to the digestion of wood, and that the yields are practically the same as are being obtained in current commercial practice. The sulphate process has the advantages of being quicker and giving an easier bleaching pulp; but on the other hand it gives off most obnoxious odors, and the gases from the digesters and from the smelters must be purified.

Consumption of Raw Materials

In order to get some idea of the cost of production of Bordeaux pine pulp, we can make use of data obtained in the commercial pulping of other species, without being afraid of going very far astray.

Coal consumption is generally given at 250 to 385 kilos per ton of pulp. Calculation shows a consumption of about 6 to 7 tons of steam, requiring at least 600 kilos of coal. The difference is doubtless due to the use of a considerable amount of wood room waste for generating steam.

For the manufacture of kraft, the volume of wood is variously given at from 5 to 7 cubic meters per ton of pulp. It is somewhat greater for bleached pulp; but we have no figures taken from commercial practice.

The consumption of alkali is about 150 kilos of sodium sulphate for kraft, and up to 300 kilos of sodium sulphate or 240 kilos of soda ash per ton for easy-bleaching pulp.

As to the lime required for caustifying, the consumption is much higher in the soda process than in the sulphate process: from 770 kilos for easy-bleaching soda, it falls to about 360 to 450 kilos for easy-bleaching sulphate, while for sulphate kraft only about 240 to 300 kilos are required per ton of pulp.

Our work was undertaken primarily to study the applicability of well-known and established processes to the treatment of Bordeaux pine; but of course there is nothing, as far as we know, to prevent

the use of the recent modifications which have been proposed to these processes.

Rinman Process Applied to Bordeaux Pine

One of the most interesting and most promising of these modifications is the Rinman process. It is a soda process which differs from the classical soda process in two particulars, first, by preliminary impregnation of the wood with black liquor, and second, by the use of a catalyst during digestion. The total time of cooking is six hours, of which four hours under a pressure of 6.5 kilos. Its chief advantages are high yield and exceptionally strong pulp, equal to the best sulphate krafts and consequently better than that of the usual soda pulps; at the same time it eliminates the most annoying and troublesome odors of the sulphate process and is closely related to a most interesting process for the recovery of valuable products from the black liquor.

This process has now reached the stage of commercial operations, and it is being used in a Bavarian mill having a capacity of 30 tons a day. We are told that a French company is being organized for the production of Bordeaux pine pulp by this process.

In this connection, Léon Feval has kindly furnished us the following information relating to tests carried out with pine from the Landes in Western France: the average yield of kraft was 50 per cent of the dry wood, and the alkali consumption for cooking was equivalent to 18 per cent of soda (Na_2O) on the dry wood. The average breaking lengths of krafts manufactured by the Rinman process, when made into paper weighing 60 grams per square meter, varied from 7,600 meters to 8,200 meters.

Production of Snow White Pulp by Chlorination

We have seen that the hypochlorite bleaching of Bordeaux pine pulp obtained by alkaline cooking gives only a creamy white. In order to get a snow white pulp we called on the chlorination processes which recently have been perfected by de Vains on the one hand, and by Cataldi and Pomilio on the other. They are based on the reaction discovered by Cross and Bevan, whereby chlorine reacts with the ligneous constituents of the plant to give chlorine derivatives and hydrochloric acid. The fibrous material is first treated with alkali, then chlorinated, and then again treated with alkali to neutralize the acid form and to dissolve out the chlorinated lignin derivative.

We chose the de Vains process, and chlorinated the pulp with chlorine water; and we carried out the second alkaline treatment in the cold, using dilute caustic soda. This was followed by a hypochlorite bleach. Under these conditions we found that the most suitable degree of disintegration was that corresponding to kraft pulp, and it gave a snow white pulp with 7.5 per cent of chlorine as chlorine water and 4 per cent of chlorine in the form of bleaching powder, calculated on the unbleached pulp.

The soda consumption was 11.2 per cent of the unbleached pulp. In the de Vains process nearly all of the soda is supplied by the waste liquor. It is true that the alkali is thereby converted into chloride and can therefore not be recovered, so that just as much fresh soda must be used as if waste liquor was not used; but the cost of recovery is eliminated. In the application of the process to the chlorination of Bordeaux pine kraft, it would be important to determine if the excess alkalinity remaining after neutralization of the hydrochloric acid formed during chlorination would be sufficient to redissolve the precipitated resins; and if it was insufficient the waste liquor could not be used for this purpose.

The yield of bleached pulp was 91.8 per cent of the unbleached pulp, or 38.2 per cent of the wood, which is very close to the yield obtained from the easy-bleaching pulp. With equal consumptions of chemicals, chlorination of kraft gives a much whiter pulp than hypochlorite bleaching of the easy-bleaching pulp; but in order to obtain maximum whiteness the consumption of chemicals must be increased somewhat.

The strength of the pulp was good, the breaking length being 5,500 meters. But there was considerable hemicelluloses, the alphacellulose content being only 63.4 per cent.

Apart from the production of a snow white pulp, which we could not obtain by the usual alkaline processes, this process has the advantage that the same cooking conditions can be used for the manufacture of ordinary kraft or of exceptionally fine bleached pulp.

Sulphite Tests

While the alkaline processes, both alone and in conjunction with chlorination treatments, are used extensively and are particularly suitable for the working of Bordeaux pine, it must be admitted that the sulphite process possesses considerable advantage as regards simplicity and cheapness, which accounts for its almost exclusive use in the production of spruce and balsam chemical pulps. It consists essentially in dissolving out the lignin and the other non-cellulose carbohydrates by the action of a hot solution of calcium bisulphite under pressure. This acid solution, contrary to the alkaline cooking liquors, exerts no marked solvent action on the resins, which, for the most part, remain in the pulp. Owing to its high resin-content, pulp prepared from Bordeaux pine by this process would give considerable trouble on the paper machine, just as in the case of groundwood.

It has even been claimed that the resin would inhibit the action of the liquor to such an extent that it would be impossible to cook the wood completely. As we shall see, this does not hold true; but the heartwood, which is much more resistant than the sapwood to the action of chemicals, necessitates working under much more drastic conditions than for spruce or balsam.

Nothing has been published relative to the application of the sulphite process to the treatment of Bordeaux pine or of the pines of the Southern States; and it has merely been mentioned in a few patents, generally in connection with processes for the extraction of the resin.

On the other hand, commercial manufacture has been attempted in France. About 1899 a mill at Mios (Gironde), near Arcachon, pulped Bordeau pine (in the form of saw mill waste, by the sulphite process. Semi-direct cooking (partly direct and partly indirect) was used. The liquor averaged about 4.5 per cenf total sulphurous acid (SO_2), and cooking lasted for 30 hours at a maximum temperature of 130° C. The pulp was then treated in the beaters with a caustic soda solution at a maximum temperature of 70° C. Unfortunately, there was a considerable proportion of undercooked chips, due to the hardness of the heartwood.

We did not have time to make a systematic study of this question; but it would appear that by cooking long enough with a strong enough liquor the heartwood could be reduced as well as the sapwood, especially when working under high pressure.

On the other hand, we tried preliminary removal of the resins, in the hope that this would facilitate digestion. We were greatly surprised to find that after a soda cook the wood could no longer be pulped by the sulphite process, even the sapwood remaining uncooked under these conditions, despite the fact that it can be cooked directly just as easily as spruce.

This fact has been confirmed by Schwalbe, who explains it by a sort of mercerization of the fibers by strong alkaline liquors. We observed the same phenomenon, however, when working with very dilute liquors under pressure and above 100° C. According to Schwalbe, in order to avoid this the temperature should not be allowed to rise above 65° C., and the liquor should not be stronger than 0.5 per cent. This would give a true alkaline extraction, without appreciably affecting the wood, and might give interesting results from the double standpoint of the extraction and recovery of the resins, and of the subsequent sulphite treatment.

These processes ceertainly deserve more thorough investigation. But the double treatment robs the sulphite process of its chief advantages, which are simplicity and low consumption of chemicals; and in order that it might still be preferable to the alkaline processes it would have to give a snow white pulp by a straight hypo-

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chlorite bleaching, unless the extracted resins could be disposed of at a price which would cover the cost of the extraction. Another advantage worthy of consideration would be the possibility of manufacturing glassine papers, which cannot be made except with sulphite pulp.

As the commercial application of the extraction of the resins has not been worked out, in discussing the economical aspect of the process we shall consider only the straight sulphite cooking.

The steam consumption is about four to five tons per ton of pulp, which would require a minimum of 400 to 500 kilos of coal; but in practice it would be lower than this owing to the utilization of wood room waste. The wood consumption would be abut 5 cubic meters, sulphur abut 90 to 100 kilos, and limestone from 116 to 165 kilos.

The main advantage of the process evidently lies in the low consumption of chemicals, and when we compare it with the sulphate process for the manufacture of kraft the difference between the two is by no means excessive. And in the production of bleached pulp, the advantage of the sulphite process would be still further reduced by the preliminary alkaline extraction of the resins. On the other hand, it must be taken into consideration that the recovery plant required for the alkaline processes is a source of considerable expense and trouble.

The sulphite process would thus appear to possess considerable possibilities; but at present the alkaline processes are the only ones which have been developed to such a point that they are immediately applicable for the pulping of Bordeaux pine.

Possible Uses

Now that we have shown how pulp can be made from Bordeaux pine, it remains to be seen to what uses the pulp could be put. They will vary, naturally, according as the pulp was obtained by the soda, sulphate, or sulphite proess, and according as it was chlorinated or bleached with hypochlorite.

These pulps can all be used without trouble, and without any further study, instead of spruce pulp in the manufacture of ordinary white writing and printing papers, in colored printing papers, the ordinary grades of wrappings, for medium grades of boards, that is, for all the ordinary grades which are produced in large tonnage. For exceptionally white papers and boards, chlorinated kraft, or possibly bleached sulphite, should be used, as hypochlorite bleaching of soda and sulphate pulps does not give as good results.

There are also two grades of wrapping papers, which are continually gaining in favor in which the pulping process is of primary importance. First of all, there is kraft paper, which is exceptionally strong and flexible, and which is not manufactured at present in France. Bordeaux pine is pre-eminently suited for the manufacture of this kind of paper, and could easily supply all the requirements of the home market and leave plenty for export. Then, we have glassine or greaseproof paper, which is used for wrapping greasy substances, or substances which must be protected from moisture. The alkaline processes are totally unsuited in this case, and nothing but sulphite is satisfactory; it would be necessary, however, to remove the resins before cooking, not after pulping.

Cellulose represents only about 50 per cent of the dry wood. At the present time the other half is completely lost, or at best used by burning up in recovering the alkali from the black liquor. Evidently, when a satisfactory process will have been found for the recovery of the valuable products which are present in the black liquor, it will be of as much benefit in the manufacture of Bordeaux pine pulp as in the treatment of other woods. The Rinman process for the production of wood alcohol, acetone, and liquid fuels for motors from the black liquid during the recovery of the alkali is an important step in the right direction. The inventor obtains these results by destructive distillation of the liquor in presence of excess of soda.

The process is about to be worked in the Landes, and Mr. Léon Feval informs us that in the course of tests carried out on Bordeaux pine the following yields were obtained:

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1. Per ton of air-dry kraft.
   - Pure methyl alcohol .....30 kilos
   - Pure acetone .....18 kilos
   - Pure methylethylketone .....17 kilos
   - Acetone oils and light oils .....20 kilos
   - Heavy oils .....40 kilos
2. Per ton of air-dry easy-bleaching pulp.
   - Pure methyl alcohol .....43 kilos
   - Pure acetone .....29 kilos
   - Pure methylethylketone .....26 kilos
   - Acetone oil .....18 kilos
   - Light and heavy oils .....75 kilos

It should be noted that most of these by-products are used in the manufacture of plastics or of explosives.

We have seen that one of the essential characterists of Bordeaux pine is its exceptionally high resin content, which, as a matter of fact, apparently has attracted considerably more attention than its paper making qualities.

September Investigations

The briefest summary of the innumerable patents which have been taken out relative to the recovery of the resins of this and similar woods would be much too long for this article; and we shall merely mention the few systematic investigations which have been carried out.

In America the Forest Products Laboratory studied the gasoline extraction of the resins, and by combining it with an alkaline digestion of the extracted chips obtained a second grade kraft. This process could not be applied in France, as the cost of gasoline would make it prohibitive. The only practical solvent would be an alkaline liquor.

It is the one that was investigated by J. S. Bates and by Schwalbe, and also by ourselves. Bates gave a preliminary cooking under a pressure of two kilos with a weak alkaline liquor, and then salted out the resin soap by adding enough soda to give a regular pulping liquor. Schwalbe, on the other hand, works with very weak liquors at a temperature not over 65° C. He effects active circulation to accelerate the extraction of the resins, and at the same time takes the required precautions to prevent contact with the air. He finally precipitates the extracted resins with acid. Our tests, which were carried out before Schwalbe published the results of his experiments, favor his procedure rather than Bates's.

We found that cooking under pressure did not increase the yield of resins, and that it had a relatively slight accelerating action on the rate of extraction. It had the twofold drawback of contaminating the resin with a considerable amount of ligneous matter, and of preventing subsequent pulping by the sulphite process. As to salting out the soap by addition of soda, this can be carried out only with selected waste containing 30 per cent of rosin, such as had been picked out by Bates.

As we considered sulphuric acid rather expensive for the precipitation of the resins, we looked around for some other suitable and cheaper material. Carbon dioxide proved quite useless. Lime and magnesia, however, gave some very promising results. These bases, which are cheaper than acids, could be recovered if the resins were used for the manufacture of rosin oil. These results would be worth investigating further; but unfortunately we have been unable to find time to do it.

The recovered resin could be used for sizing cheap colored papers by adding the alkaline soap solution directly to the beater, for the preparation of lubricating greases, and especially in the manufacture of rosin oil. As to the turpentine, it should be recovered from the steam used for steaming the wood, or from the relief and blow pit gases. At best, there would be recovered only about 8 per cent of the wood, and the quality of the rosin would be greatly inferior to that obtained in the usual way from gum turpentine. Such a recovery process would doubtless be most promising and useful in connection with the production of sulphite pulp.

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Wallpaper.....618 bls., 20 cs.
Filter paper.....12 cs.
Packing paper.....637 bls.
Wrapping paper.....131 rolls, 14 bls.
Drawing paper.....6 cs.
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E. M. Sergeant Company, by same, 762 bls. sulphite pulp, 150 bls. dry soda pulp.
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(*Continued on page 136*)

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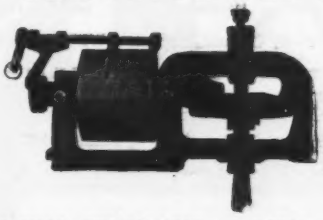

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(*Continued from page* 134)

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Castle & Overton, Inc., Leerdam, Rotterdam, 203 bls. rags.

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WEEK ENDING OCTOBER 25, 1924

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E. J. Keller Company, Inc., Texas, Gothenburg, 75 bls. rags.
E. J. Keller Company, Inc., Texas, Aarhus, 28 bls. rags.
E. J. Keller Company, Inc., Cales Creux, Genoa, 68 bls. cotton waste.
E. J. Keller Company, Inc., Cales Creux, Leghorn, 53 bls. rags.
E. J. Keller Company, Inc., Sarcoxie, St. Nazaire, 69 bls. rags.
Stone Brothers & Co., by same, 671 bls. rags.
Goldman, Sachs & Co., by same, 43 bls. rags.
Katzenstein & Keene, Inc., London Mariner, London, 179 bls. rags.
A. W. Fenton, Inc., by same, 156 bls. rags.
G. W. Granes, by same, 25 bls. rags.
S. Birkenstein & Sons, by same, 145 coils old rope.
Castle & Overton, Inc., London Mariner, Germany, 685 bls. wood pulp.
Lagerloef Trading Company, Inc., Eastern Star, 6,667 bls. chemical pulp.
Johaneson, Wales & Sparre, Inc., Christian, Bors Frano, 2,400 bls. sulphate pulp.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 25, 1924

E. J. Keller Company, Inc., Sweden Maru, Hamburg, 401 bls., 60 tons wood pulp.
Castle & Overton, Inc., by same, 795 bls. wood pulp.
Johaneson, Wales & Sparre, Inc., Modesta, Sundvall, 360 bls. sulphite pulp.
Johaneson, Wales & Sparre, Inc., Coresholm, Gothenburg, 1,652 bls. sulphite pulp, 875 bls. sulphate pulp.

BOSTON IMPORTS

WEEK ENDING OCTOBER 25, 1924

Brown Brothers & Co., Fluor Spar, Leith, 234 coils old rope, 24 bags old rope.
Crocker, Burnbank & Co., by same, 60 bls. waste paper.
Falulah Paper Company, by same, 49 bls. waste paper.
T. D. Downing & Co., by same, 30 bags. rags.
Katzenstein Keene, Inc., by same, 226 bls. cotton rags.
Wm. Schall & Co., by same, 93 bls. paper stock.
Hartig Pulp Co., Landvard, Christiania, Sweden, 2,500 bls. sulphate pulp.
Bulkley, Dunton Company, by same, 875 bls. sulphite pulp, 2,625 bls. sulphate pulp.
Price & Pierce, by same, 5,700 bls. sulphite pulp.
J. Andersen & Co., Inc., by same, 2,700 bls. sulphite pulp.
Pagel, Horton & Co., Inc., by same, 1,200 bls. sulphite pulp.
On order, Steel Traveller, Vancouver, 396 bags waste paper.
A. W. Fenton & Co., Valemore, Liverpool, 95 coils old rope.

English China Clay Exports Improve

WASHINGTON, D. C., October 30, 1924.—During the past two years considerable recovery has taken place in the English china clay export trade, and from present indications it would appear that 1924 is going to see further recovery in foreign business, says a report to the Department of Commerce from London.

As a great proportion of china clay produced in the United Kingdom is exported abroad, the trend of overseas trade largely determines conditions in the British industry. Since the depth of post-war depression was touched by this trade in 1921, export trade has progressed very far, and now bids fair to come nearer to normal level.

Before the war period exports of china clay from the United Kingdom amounted to around 630,000 tons per annum. During 1921, however, overseas shipments fell heavily, having amounted to only 247,000 tons. Since the severe depression of 1921 occurred, rapid recovery in foreign business has taken place, with the result that in 1922 shipments abroad amounted to 503,000 tons, and in 1923 to 522,000 tons.

The largest single foreign market for English china clay is the United States, and exports to this field comprise as a rule between forty and sixty per cent of the total china clay shipped abroad. Other foreign markets consuming good sized quantities of English china clay include Sweden, Belgium, France, Netherlands, Italy, Spain and India.

While china clay production in the United Kingdom can hardly attain pre-war proportions until the home and export markets resume normal purchases, the foreign section of the trade in particular is encouraging at the present time. Already heavier shipments abroad are recorded thus far in 1924, for during the first four months of this year total china clay exports amounted to 190,628 tons, as compared with 165,418 tons sent abroad in the same period of 1923, 121,618 tons in 1922, and only 67,034 tons in 1921.

Domestic purchases are still restricted, but there are prospects of improved business in a number of export markets. Orders from American potteries and paper mills are constantly being received in large quantities and shipments to this market are consequently heavy. In continental markets, particularly France and Belgium, business was hindered early in the year because of exchange difficulties, but with improvement in the franc these markets have been doing better buying recently. Spain and India also continue to take good-sized quantities of English china clays.

Although the china clay export trade has been expanding, the matter of foreign competition is causing considerable concern among producers in the United Kingdom, and efforts are being constantly made to arrive at means to meet such rivalry and thus further expand export trade. Competition from domestic clays is considered to be assuming greater proportions than ever before in America, while the products of France, Czecho-Slovakia and India are also making it more difficult to sell certain grades of English clays.

Efforts are constantly being made by the British industry to reduce production costs, accelerate deliveries, and in other ways combat competition. Considerable progress has already been made in the way of securing better railway accommodations, while further improvement in storage and transportation facilities are constantly being urged. Attempts are now being made to have a long-neglected port in the district reopened, this port being favorably located to serve Continental buyers and also excellently placed for importing coal and other requirements. Improved methods of production are also being installed by various manufacturers from time to time. Oil fuel drying plants have been introduced in recent years, and one firm announces that £50,000 out of last year's receipts is being set aside for future developments including new drying kilns, pipe lines and mechanical plants.

R. P. Andrews Paper Co. Buys Building

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., October 29, 1924.—Ninety thousand dollars is said to have been paid for the building now housing the retail department of the R. P. Andrews Paper Company by Mr. Andrews.

Some months ago the large main store and warehouse of the Andrews Company was sold to the Chesapeake and Potomac Telephone Company. The Andrews firm built a large warehouse in another part of the city and the retail store of the Andrews Company was moved across the street. It is this store which has just been purchased by Mr. Andrews.

The Home of Quality

FACTORY
133RD TO 133RD ST. & BROOK AVE

PAPER BAGS and SACKS

GLASSINE BAGS—SPECIALTIES

Operating a Modern Printing Plant

This Registered Trade Mark Octagon

on a Paper Bag vouches for Its Good Quality

SCHORSCH & CO.

Manufacturers *Established 1901*

500 East 133d Street . New York

KVP

Papers:

Genuine Vegetable Parchment
For wrapping all moist and greasy foodstuffs.

Bread Wraps—Waxed Papers
For tight-sealing cartons and wrapping dry foods.

Bond and Ledger Papers
All standard sizes, weights and colors.

Handy Household Papers in Rolls
Ask and ye shall receive full information.

KALAMAZOO VEGETABLE PARCHMENT CO.
Manufacturers of
PARCHMENT, WAXED and BOND PAPERS

KALAMAZOO, MICHIGAN
Where *Quality* is the watchword.

Clay

300 Tons daily

Entire production of a group of mines under one management insures uniformity in quality and minimum production costs.

Let us submit samples and quote you.

AMERICAN MADE FOR AMERICAN TRADE

THE MINER EDGAR CO.

110 William Street
New York

FOURDRINIER WIRES

Dandy Rolls, Cylinder Molds,
Steel, Brass and Bronze
Wire Cloth
Bank and Office Railings.

CHENEY BIGELOW WIRE WORKS

Established 1842

SPRINGFIELD MASS.

J. ANDERSEN & CO.

21 EAST 40th STREET, NEW YORK CITY

Importers of Chemical Pulps

BLEACHED and UNBLEACHED

Agents for Kellner Partington Paper Pulp Co., Ltd.
Sarpsborg, Norway; Forshaga, and Edsvalla, Sweden.
Kronstädter Papierstoff—Fabriks Actien—Gesellschaft
Mills at Tuciansky, Sv. Martin

Market Quotations

PAPER SECURITIES CLOSING PRICES TUESDAY

Reported by Stewart Tuttle & Co., Inc., 120 Broadway, New York

Stocks	BID	ASKED
Abitibi Power and Paper Company, Ltd.	53	53½
Abitibi Power and Paper Company, Ltd., Pfd.	98¼	99
American Writing Paper Company, Pfd.	2	2½
Brompton Pulp and Paper Company, Ltd.	27	28½
Donnacona Paper Company, Ltd.	45	50
Donnacona Paper Company, Ltd., Pfd.	98	100
International Paper Company	45¾	45⅞
International Paper Company, Pfd.	71	71¼
Laurentide Company, Ltd.	80	80½
Price Brothers	35⅜	35¾
St. Maurice Paper Co., Ltd.	82½	83
Smith (Howard) Paper Mills, Ltd.	27½	27⅝
Spanish River Pulp and Paper Mills, Ltd.	99½	99¾
Spanish River Pulp and Paper Mills, Ltd., Pfd.	109½	110
Union Bag and Paper Corp.	37¼	37⅜
Wayagamack Pulp and Paper Company, Ltd.	36	37
West Virginia Pulp and Paper Company	53	55

Bonds	BID	ASKED
Abitibi Power and Paper Company, Ltd., 1st 6s, 1934	100	101
Abitibi Power and Paper Company, Ltd., Gen. 6s 1940	96	98
Abitibi Power and Paper Company, Ltd., Con. 8s 1931	102½	103½
Belgo Canadian Paper Company, 1st 6s 1943	96¾	97¼
Brown Company Serial 6s	99½	100
Carthage Sulphite Pulp and Paper Company, 1st 8s 1941	35	50
Continental Paper and Bag Mills Corporation, 1st and Ref. 6½s, Series "A," 1944	94	95
Donnacona Paper Company, Ltd., 1st 6s 1940	98	100
Eddy Paper Company, 1st 7½s 1931	94	95
Gair (Robert) Company, 1st 7s 1937	98	98¼
International Paper Company, 1st and Ref. 5s (Series "B") 1947	86	87
Mattagami Pulp and Paper Company, 1st 6s 1937	58	60
Mattagami Pulp and Paper Company, 1st 7s 1949	20	25
Oswego Falls Corporation, 1st 6s 1942	101½	102
Oxford Paper Company, 1st and Ref. 6s (Series "A") 1947	98	100
Parker, Young Company, 1st 6½s 1944	95½	97½
Paterson Parchment Paper Company, 1st 6s (Series "A") 1938	97½	99½
Peshtigo Paper Company, 1st 7s (Series "B") 1942	92	94
Price Bros. & Co., Ltd., 1st 6s (Series "A") 1943	98¼	99¾
Provincial Paper Mills, Ltd., 1st 6s 1940	98	100
Riordon Pulp and Paper Company, Ltd., Gen. 6s 1929	25½	30
Riordon Pulp and Paper Company, Ltd., 6s 1942	91	93
Riordon Company, Ltd., 1st and Ref. 8s 1940	96¾	97
River Raisin Paper Company, 1st 8s 1936	103	104
Smith (Howard) Paper Mills, Ltd., 6s 1934	95	95½
Smith (Howard) Paper Mills, Ltd., 1st Ref. 7s 1941	90	95
Spanish River Pulp and Paper Mills, Ltd., 1st 6s 1931	102½	103
Spanish River Pulp and Paper Mills, Ltd., Gen. 8s 1941	106	106½
Wayagamack Pulp and Paper Company, Ltd., 1st 6s 1951	74	77

Paper

F. o. b. Mill

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@30.00
Superfine	14.00	@30.00
Tub Sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.65	@ 3.90
Rolls, transit	3.75	@ 4.25
Sheets	4.15	@ 4.40
Side Runs	3.25	@ 4.00
Book, Cased—		
S. & S. C.	7.00	@ 9.75
M. F.	6.50	@ 8.75
Coated and Enamel	9.00	@15.00
Lithograph	9.00	@14.00
Tissues—		
White No. 1	.75	@ .90
White No. 2	.70	@ .80
Colored	1.05	@ 1.90
Anti-Tarnish	1.40	@ 2.30
Kraft	.90	@ 1.00
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	5.50	@ 6.25
No. 2 Domestic	5.00	@ 5.75
Imported	5.50	@ 5.75
Manila—		
No. 1 Jute	9.00	@
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.00
Fibre Papers—		
No. 1 Fibre	5.50	@ 5.75
No. 2 Fibre	4.75	@ 5.25
Common Bagus	2.50	@ 2.75
R. Screening	3.25	@ 3.75
Card Middles	4.00	@ 5.00

Boards—per ton—		
News	50.00	@52.50
Straw	50.00	@55.00
Chip	42.50	@45.00
Binders' Boards	75.00	@80.00
Sgl. Mla. Ll. Chip	55.00	@62.50
Wood Pulp	70.00	@75.00
Container	62.50	@67.50
Sulphate Screenings—		
Coarse	.80	@ .90
Refined	1.75	@ 2.00
Ground Wood—		
Screenings	20.00	@25.00
Glassine—		
Bleached, basis 25 lbs.	12.00	@15.00
Bleached, basis 20 lbs.	14.00	@17.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported	35.00	@40.00

(F. o. b. Mill)

No. 1 Domestic	27.50	@34.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.50
Easy Bleaching	2.90	@ 3.15
No. 1 strong unbleached	2.75	@ 3.25
No. 2 strong unbleached	2.50	@ 2.75
No. 1 Kraft	2.75	@ 2.85
Sulphate—		
Bleached	3.50	@ 3.65

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.50	@ 4.50
Easy Bleaching Sulphite	2.75	@ 3.25
News Sulphite	2.50	@ 2.75
Mitscherlich	3.25	@ 3.75
Kraft (Domestic)	2.75	@ 3.00
Soda Bleached	3.90	@ 4.10

Domestic Rags

New Rags

Prices to Mill, f. o. b. N. Y.

Shirt Cuttings—		
New White, No. 1	14.00	@15.00
New White, No. 2	7.00	@ 7.75
Silesias, No. 1	8.75	@ 9.25
New Unbleached	11.00	@11.50
Washables	7.00	@ 7.50
Fancy	7.75	@ 8.50
Blue Overall	8.25	@ 9.50
New Blue	5.00	@ 5.50
New Black Soft	4.75	@ 5.25
New Light Seconds	3.00	@ 3.25
O. D. Khaki Cuttings	5.25	@ 6.00
Men's Corduroy	5.00	@ 5.75
New Canvas	7.00	@ 7.50
New Black Mixed	2.75	@ 3.00

Old Rags

White, No. 1—		
Repacked	6.25	@ 6.50
Miscellaneous	5.50	@ 5.75
White, No. 2—		
Repacked	4.25	@ 4.50
Miscellaneous	3.75	@ 4.00
St. Soiled, White	3.00	@ 3.50
Thirds and Blues—		
Repacked	4.00	@ 4.25
Miscellaneous	3.00	@ 3.25
Black Stockings	3.50	@ 3.75
Roofing Rags—		
Cloth Strippings	1.90	@ 2.00
No. 1	2.40	@ 2.50
No. 2	2.30	@ 2.40
No. 3	1.20	@ 1.30
No. 4	1.20	@ 1.30
No. 5A	1.80	@ 1.50

Foreign Rags

New Light Silesias	7.50	@ 8.75
Light Flannelettes	8.00	@ 8.25
Unbl'chd Cottons	9.50	@10.00
New White Cuttings	11.50	@12.50
New Light Oxfords	7.75	@ 8.25
New Light Prints	7.25	@ 7.75
New Mixed Cuttings	3.25	@ 3.75
New Dark Cuttings	3.00	@ 3.50
No. 1 White Linens	10.00	@11.00
No. 2 White Linens	7.00	@ 8.00
No. 3 White Linens	6.00	@ 6.50
No. 4 White Linens	4.50	@ 5.50
Old Extra Light Prints	4.50	@ 5.00
Ord. Light Prints	3.00	@ 3.50
Med. Light Prints	2.40	@ 2.50
Dutch Blue Cottons	3.50	@ 4.00
Ger. Blue Cottons	3.00	@ 3.25
Ger. Blue Linens	3.50	@ 4.00
Checks and Blues	2.25	@ 2.50
Dark Cottons	1.50	@ 1.75
Shoppery	1.40	@ 1.60
French Blues	3.25	@ 3.75

Bagging

Prices to Mill F. o. b. N. Y.

Gunny No. 1—		
Foreign	1.80	@ 2.00
Domestic	1.75	@ 2.00
Wool, Tares, light	1.55	@ 1.65
Wool, Tares, heavy	1.60	@ 1.70
Bright Bagging	1.30	@ 1.60
Sound Bagging	.90	@ 1.00
Manila Rope—		
Foreign	6.25	@ 6.50
Domestic	6.50	@ 6.75
New Bu. Cut	2.25	@ 2.50
Hessian Jute Threads—		
Foreign	2.25	@ 2.50
Domestic	2.10	@ 2.30

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.50	@ 3.75
Hard, White, No. 2	3.25	@ 3.50
Soft, White, No. 1	2.90	@ 3.10
Flat Stock—		
Stitchless	1.50	@ 1.60
Over Issue Mag.	1.60	@ 1.70
Solid Flat Book	1.45	@ 1.55
Crumpled No. 1	1.25	@ 1.35
Solid Book Ledger	1.80	@ 1.90
Ledger Stock	1.60	@ 1.70
New B. B. Chips	.50	@ .55
Manilas—		
New Env. Cut	2.45	@ 2.55
New Cut. No. 1	1.75	@ 2.00
Extra No. 1 old	1.40	@ 1.50
Print	1.20	@ 1.30
Container Board	1.00	@ 1.10
Bogus Wrapper	1.00	@ 1.10
Old Krafts Machine compressed bales	2.10	@ 2.20
News—		
No. 1 White News	1.65	@ 1.75
Strictly Overissue	1.05	@ 1.15
Strictly Folded	.95	@ 1.05
No. 1 Mixed Paper	.75	@ .85
Common Paper	.55	@ .65

Twines

Cotton—(F. o. b. Mill)—		
No. 1	.43	@ .48
No. 2	.41	@ .43
No. 3	.40	@ .42
India, No. 6 basis—		
Light	.19	@ .20
Dark	.17	@ .19
B. C., 18 basis	.39	@ .41
A. B. Italian, 18 Basis	.31	@ .61
Finished Jute—		
Dark, 15 basis	.30	@ .31
Light, 18 basis	.28	@ .30
Jute Wrapping, 3-6 Ply—		
No. 1	.30	@ .32
No. 2	.18	@ .20
Tube Rope—		
4-ply and larger	.15	@ .17
Fine Tube Yarn—		
5-ply and larger	.20	@ .23
4-ply	.21	@ .24
3-ply	.22	@ .25
Unfinished India—		
Basis	.14	@ .15
Paper Makers' Twine		
Balls	.12	@ .13
Box Twine, 2-3 ply	.14	@ .15
June Rope	.20	@ .40
Amer. Hemp, 6	.30	@ .32
Sisal Hay Rope—		
No. 1 Basis	.14	@ .16
No. 2 Basis	.10	@ .12
Sisal Lath Yarn—		
No. 1	.14	@ .15
No. 2	.11	@ .13
Manila Rope	.18	@ .19

CHICAGO

[FROM OUR REGULAR CORRESPONDENT]

Paper

F. o. b. Mill

All Rag Bond	35	@ 40
No. 1 Rag Bond	25	@ 35
No. 2 Rag Bond	14	@ 25
Water Marked Sulphite	9	@ 12
Sulphite Bond	6½	@ 10¼
Sulphite Ledger	9½	@ 12
Superfine Writing	18	@ 24
No. 1 Fine Writing	14	@ 18
No. 2 Fine Writing	12	@ 14
No. 3 Fine Writing	9	@ 12
No. 1 M. F. Book	5½	@ 7½
No. 1 S. & S. C. Book	6½	@ 7¾
Coated Book	8	@ 10
Coated Label	8	@ 10
News—Rolls, mill	3½	@ 4¼
News—Sheets, mill	4	@ 4½
No. 1 Manila	4¼	@ 5½
No. 1 Fibre	5	@ 5½
No. 2 Manila	3½	@ 4¼
Butchers' Manila	4	@ 4½
No. 1 Kraft	6	@ 6¼
No. 2 Kraft	5	@ 5¼
Wood Tag Boards	4½	@ 6
Sulphite Screenings	2½	@ 2¾
Manila Tissue, 24x36 sheet	6¾	@ 7
White Tissue, 20x30 sheet	6¾	@ 7
Boards, per ton—		
Plain Chip	47.50	@50.00
Solid news	50.00	@52.50
Manila Line Chip	57.50	@60.00
Container Lined—		
85 Test	67.50	@70.00
100 Test	72.50	@75.00

Old Papers

F. o. b. Chicago

Shavings—		
No. 1 Hard White	3.20	@ 3.25
White Envel. Cuttings	3.20	@ 3.25
No. 1 Soft Shav.	3.00	@ 3.10
No. 1 Mixed	1.55	@ 1.65
No. 2 Mixed	1.35	@ 1.55

Ledgers and Writings	1.65	@	1.70
Solid Books	1.60	@	1.65
No. 1 Light Books	1.15	@	1.20
Blanks	210	@	2.15
Ex. No. 1 Manila	2.50	@	2.60
Manila Envelope Cuttings	2.60	@	2.70
Folded News (over issue)	1.00	@	1.05
Old Newspapers—			
No. 1	.90	@	.95
No. 2	.85	@	.90
Mixed Papers—			
No. 1	.80	@	.85
No. 2	.75	@	.80
Straw Clippings	.90	@	—
Binders' Clippings	.90	@	—
Kraft	2.20	@	2.25
New Kraft Cuts	2.60	@	2.65
Roofing Stock, f. o. b. Chicago, Net Cash—			
No. 1	$42.00	@	—
No. 2	40.00	@	—
No. 3	38.00	@	—
No. 4	38.00	@	—

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT]

Paper

Bonds	.09½	@	.53
Ledgers	.13½	@	.40
Writings—			
Superfine	.13½	@	.20
Extra fine	.12	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.09	@	.11
Book, S. S. & C.	.09¾	@	.12½
Book, Coated	.14	@	.20
Coated Lithograph.	.10	@	.13
Label	.10	@	.13
News	.05	@	.06½
No. 1 Jute Manila	.12	@	.13
Manila Sul., No. 1	.08	@	.10
Manila No. 2	.07	@	.08
No. 2 Kraft	.06	@	.08
No. 1 Kraft	.08	@	.09½
Common Bogus	.03½	@	.04
Straw Board	55.00	@	60.00
News Board	42.50	@	—
Chip Board	40.00	@	42.50
Wood Pulp Board	2.75	@	3.00
(Carload Lots)			
Binder Boards—			
Per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	61.00	@	63.00
Slaters	66.00	@	68.00
Best Tarred, 1-ply (per roll)	1.70	@	1.80
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.10

Bagging

F. o. b. Phila.

Gunny No. 1—			
Foreign	1.75	@	1.85
Domestic	1.75	@	2.00
Manila Rope	5.00	@	5.50
Sisal Rope	2.50	@	—
Mixed Rope	1.25	@	—
Scrap Burlaps	1.00	@	1.25
Wool Tares, heavy	2.00	@	2.13
Mixed Strings	1.00	@	—
No. 1, New Lt. Burlap	3.50	@	3.75
New Burlap Cuttings	3.50	@	—

Old Papers

F. o. b. Phila.

Shavings—			
No. 1, Hard White	3.75	@	3.80
No. 2, Hard White	3.25	@	3.40
No. 1 Soft White	2.75	@	3.00
No. 2 Soft White	2.00	@	2.25
No. 1 Mixed	2.00	@	—
No. 2 Mixed	1.25	@	1.30
Solid Ledger Stock	1.75	@	1.90
Writing Paper	1.50	@	1.75
No. 1 Books, heavy	1.45	@	1.60
No. 2 Books, light	1.15	@	1.25
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.75
Container Manila	1.10	@	1.15
Old Kraft	2.00	@	2.25
Overissue News	1.05	@	1.10
Old Newspaper	.65	@	.70
No. 1 Mixed Paper	.75	@	.80
Common Paper	.60	@	.70
Straw Board, Chip	.65	@	.70
Binders Bd., Chip	.65	@	.70

Domestic Rags—New.

Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.12	@	.13
New White, No. 2	.07	@	—
Silesias, No. 1	.08¼	@	.08½
New Unbleached	.11½	@	.11¾
Washable	.05½	@	.05¾
Fancy	.07	@	.07¼
Cottons—according to grades—			
Blue Overall	.09¼	@	.09½
New Blue	.03½	@	.03¾
New Black Soft	.06	@	.06¼
New Light Seconds	.03½	@	.03¾
Khaki Cuttings	.05½	@	.06
Corduroy	.04	@	.04½
New Canvas	.10½	@	.11
New Black Mixed	.05	@	.05¼
Old			
White, No. 1—			
Repacked	7.50	@	8.00
Miscellaneous	6.25	@	6.50
White, No. 2—			
Repacked	.05	@	.05½
Miscellaneous	.04¼	@	.05¼
Thirds and Blues—			
Repacked	3.65	@	3.85
Miscellaneous	3.15	@	3.25
Black Stockings	4.00	@	4.50
Roofing Stock—			
No. 1	2.30	@	240
No. 2	2.20	@	2.30
No. 3	1.15	@	1.20
No. 4	2.10	@	2.20
No. 5A	1.40	@	—
B	1.25		nominal
C	1.15		nominal

TORONTO

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted	.12	@	.13½
Dark tinted	.13½	@	.15
Ledgers (sulphite)	—	@	.13
Writing	.09½	@	.12
News, f. o. b. Mills—			
Rolls (carloads)	3.65	@	—
Sheets (carloads)	—	@	4.50
Sheets (3 tons or over)	—	@	4.75
Book—			
No. 1 M. F. (carloads)	9.00	@	—
No. 2 M. F. (carloads)	8.00	@	—
No. 3 M. F. (carloads)	7.50	@	—
No. 1 S. C. (carloads)	9.50	@	—
No. 2 S. C. (carloads)	8.50	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Wrapping—			
Rag Brown	4.75	@	—
White Rag	5.25	@	—
"B" Manila	5.50	@	—
No. 1 Manila	6.50	@	—
Fiber	6.50	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.15	@	—

Pulp

(F. o. b. Mill)

Ground wood	$28.00	@	30.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	50.00	@	55.00
Sulphite, bleached	80.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.60	@	—
Soft White Book shavings	3.00	@	—
White Blk. News	1.90	@	—
Book and Ledger—			
Flat Magazine and Book Stock(old)	1.50	@	—
Light and Crumpled Book Stock	1.35	@	—
Ledgers and Writings	1.75	@	—
Solid Ledgers	1.75	@	—
Manilas—			
New Manila Cut	—	@	1.60
Printed Manilas	1.20	@	—
Kraft	2.05	@	—
News and Scrap—			
Strictly Overissue	.90	@	—
Folded News	.90	@	—
No. 1 Mixed Papers	—	@	.75

Domestic Rags—

Price to mills, f. o. b. Toronto

	Per lb.		
No. 1 White shirt cuttings	.14½	@	.14¾
No. 2 White shirt cuttings	.07½	@	.08
Fancy shirt cuttings	.08	@	.08½
No. 1 Old Whites	—	@	—
Third and blues	.05½	@	.05¾
	Per cwt.		
Black stockings	.04	@	—
Roofing stock:			
No. 1	2.20	@	—
No. 2	2.10	@	—
Manila rope	.06	@	.06¼
No. 2	1.35	@	—

BOSTON

[FROM OUR REGULAR CORRESPONDENT]

Paper

Ledgers—			
Sulphite	.08½	@	.18
Rag Content	.18	@	.36½
All Rag	.38	@	.50
Bonds—			
Sulphite	.07½	@	.14
Rag Content	.16	@	.33½
All Rag	.36½	@	.51
Writings	.08½	@	.20
Superfines	.20	@	.48
News	.04	@	.06½
Book, M. F.	.06¼	@	.10¾
Book, Super	.07½	@	.11
Book, Coated	.09½	@	.20
Coated Litho	.10	@	.15
Label	.09½	@	.15
Jute Manila No. 1	.12	@	.13
Manila, Sul. No. 1	.05	@	.06
Manila, Sul. No. 2	.03¾	@	.04¼
No. 1 Kraft	6¼	@	.06½
No. 2 Kraft	.05¾	@	.05½
Common Bogus	.03½	@	.04
Straw Board	50.00	@	55.00
News Board	47.50	@	50.00
Chip Board	45.00	@	47.50
Wood Pulp Board	80.00	@	85.00
Binder Boards	75.00	@	85.00
Tarred Felts—			
Regular	61.00	@	63.00
Slater's	66.00	@	68.00
Best Tarred, 1 Ply, roll	1.50	@	1.60
Best Tarred, 2 Ply, roll	1.70	@	1.80
Best Tarred, 3 Ply, roll	2.00	@	2.10

Old Papers

Shavings—			
No. 1 Hard White	4.00	@	4.25
White Blank News	1.75	@	2.00
Manila Env. Cuttings	2.80	@	3.00
No. 2 Hard White	3.25	@	3.50
No. 1 Soft White	3.10	@	3.25
No. 2 Soft White	2.25	@	2.50
No. 1 Mixed	1.60	@	1.75
No. 2 Mixed	1.25	@	1.50
Solid Ledger Stock	2.00	@	2.25
Writing Paper	—	@	1.70
No. 1 Books, Heavy	1.60	@	1.80
No. 1 Books, Light	1.40	@	1.50
No. 1 New Manila	2.50	@	2.60
No. 1 Old Manila	1.75	@	2.00
Print Manila	1.05	@	1.20
Old Kraft	2.00	@	2.25
Overissue News	1.00	@	1.20
Old Newspapers	.90	@	1.00
No. 1 Mixed Paper	.70	@	.75
Box Board, Chip	.70	@	.75

Bagging

Price f. o. b. Boston

Gunny No. 1—			
Foreign	1.12½	@	2.00
Domestic	2.00	@	2.12½
Manila Rope	6.00	@	6.50
Mixed Rope	1.50	@	1.62½
Scrap Burlaps	1.25	@	1.50
Wool Tares, heavy	2.00	@	2.13
Mixed Strings	1.50	@	1.62½
New Burlap Cuttings	2.00	@	2.25

Domestic Rags (New)

Price f. o. b. Boston

Shirt Cuttings—			
New White No. 1	.13½	@	.14
Silesias, No. 1	.09	@	.09½
New Unbleached	.12½	@	.13
Washable	.06	@	.06¾
Fancy	.07	@	.07¼
Cottons — according to grades, Blue Overall	.09½	@	.10
New Blue	.05½	@	.06
New Black, soft	.06	@	.06¾
Khaki Cuttings	.05½	@	.06
Corduroy	.04	@	.04½
New Canvas	.10½	@	.11

Domestic Rags (Old)

Price f. o. b. Boston

White No. 1—			
Repacked	7.50	@	8.00
Miscellaneous	6.50	@	7.00
White No. 2—			
Repacked	5.50	@	6.00
Miscellaneous	4.75	@	5.50
Thirds and Blues—			
Repacked	3.75	@	4.00
Miscellaneous	3.00	@	3.25
Roofing Stock—			
No. 1	2.25	@	2.37
No. 2	2.12½	@	2.25
No. 3	1.50	@	1.75
No. 4	1.15	@	1.20

B. F. Perkins & Sons, Inc., to Build

HOLYOKE, Mass., October 28, 1924.—Announcement was made the past week that B. F. Perkins & Sons, Inc., manufacturers of paper mill machinery, calender rolls, etc., would award the contract for a new factory building after election if the election went for Coolidge. If the election is thrown into Congress building will be deferred on account of the uncertainty arising from this condition. Meantime contractors are figuring on the building which will be four stories high of brick, concrete and steel, and concrete basement with heavy wooden floors, steel pillars and girders and will cost about $200,000.

The new building forecasts the removal of the industry to Willimansett following which the property now owned on Crescent street will either be taken over by the American Tissue Mills, Inc., or sold.

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, October 29, 1924.

October has contributed satisfactorily to the Fall expectations of the paper market. The paper men have been roughly figuring up the business done during the past month and they all agree that the result is gratifying even if it cannot be called entirely satisfactory. After an exceptionally dull Summer the market approached the Fall season with considerable trepidation. Some hoped to see business get back somewhere near to normal, some were enthusiastic enough to believe that it might do so and others were skeptical and looked for prolonged dullness. The early days of September gave the first indications, however, of an awakening of the market and before the month ended there had been a healthy improvement. October has continued that progress. The betterment has at all times been slow but it has been steady and consistent. There have been no reactions and at this writing November looms up full of promise. Throughout the paper industry conditions are better than they have been for a considerable time. The mills are fast getting back to a production mark that is not far from capacity. From the paper buying sources orders are coming in in ever increasing quantities while the inquiries about this and that item keep the paper men busy. It is seldom that the market is in a more inquiring mood than at the present time and, inasmuch as November is expected to turn much of this inquiring into actual business, the immediate future should place the market on better vantage ground and put business within easy range of the November normal even if it does not quite attain that coveted mark. Paper men are at least congratulating themselves on the fact that the next week will sound the death knell of the political campaign. Business, they say, has been thrown into a turmoil by political speculation and has for many weeks been unable to get into the proper mental attitude to concentrate on anything. If things do not move along faster after the election is out of the way it will prove that they have been wrong in their conjectures that politics has been the thing that has ailed business. The year is nearing its end but there is every indication at this time that the wind-up of the year will see the paper market stimulated to a greater activity than it has seen in months and that November and December may not only hold their own but may, perhaps, help make up for some of the dull weeks.

Mechanical Pulp

The better demand that is being experienced in mechanical pulp indicates that the news print and box board mills are more active. The consumption is getting better. It is said that some concessions are occasionally being made.

Chemical Pulp

The chemical pulp demand is inclined to be spotty. Kraft is having a steady demand but sulphite and other grades are having only a limited call. Buying is mostly for the immediate present. Prices are holding firm.

Rags

The rag demand has fallen off a trifle. The mills are not inclined to buy with liberality and their orders only cover immediate demands. The prices are easy and the tendency is downward rather than upward. The prices on new cuttings, however, remain firm. The demand for imported rags is not what it was two weeks ago.

Old Rope and Bagging

There has been a big improvement in old rope demand. Prices are firm and inclined to move upward. Bagging is doing satisfactorily and roofing bagging is especially active.

Waste Paper

The waste paper market is not in any too good shape. Most of the grades are slow and when the buyer buys he does so in unusually small lots. They are not interested in buying for the future. It is believed that a decline in price on many of the items will occur within a short time.

Twines

The twine market is doing a little better and the dealers are conforming more rigidly to the prices quoted. It has been a long time since twine showed any real action but the developments of the last week indicate that they are on the eve of something really worth while.

Swedish Pulp and Paper Engineers Meet

[FROM OUR REGULAR CORRESPONDENT.]

STOCKHOLM, October 20, 1924.—Two recent events of commercial and scientific interest in the pulp and paper world of Sweden are the annual fall meeting of the Association of Swedish Pulp and Paper Engineers at Falun, Sweden, and a pulp and paper session of the Society of Swedish Engineers held at the Swedish Chamber of Commerce in London.

A feature of the London meeting was the proposal by Gustaf Hellström, one of the speakers, that a pulp institute be established in Sweden for the purpose of assembling and organizing all available information regarding the nature and history of technical methods of manufacturing pulp in Sweden. Mr. Hellström also advocated the educational value of such an institute in being able to serve the trade in general by publishing the fruits of research and experiments made in Sweden. One of the enthusiastic supporters of the plan was E. G. Sahlin, Swedish Consul-General in London.

The hosts of the Association of Swedish Paper and Pulp Engineers this fall were Stora Kopparbergs Bergslags Aktiebolag and J. H. Munktells Pappersfabriks Aktiebolag. All of the paper and pulp mills of these two concerns were thrown open for inspection by the engineers under the guidance of experts, who recalled interesting bits of history along with their technical explanations.

Stora Kopparbergs Bergslags Aktiebolag, though 700 years old, being the oldest industrial corporation in the world, has been manufacturing pulp and paper a comparatively short time. This company was engaged principally in copper mining from the beginning of the 13th to the middle of the 18th century, a period of more than five hundred years. In the work of mining considerable use of timber was made, and the company found it economical to acquire large forest tracts, a policy which enabled it to turn to lumbering on a large scale as the production of copper gradually had to be discontinued. Pulp manufacture was begun in 1894 at Skutskär and the manufacture of both paper and pulp at Kvarnsveden in 1900. At the former plant ground pulp is produced at the rate of about 170 tons per day. At the latter plant sulphite pulp is manufactured, about 15,000 tons per year, exclusively for the adjoining paper mill, which has a capacity of 200 tons per day.

The Munktell Paper Mill at Falun is also a descendant of an entirely different kind of factory, namely, a plant for the reduction of copper, with its history traceable as far back as 1414. The manufacture of paper began in 1740, under the ownership of Johan Munktell, whose descendants have ever since owned the mill. Paper was made by hand until 1838, when the first machines were introduced. The present annual capacity is 7,500 tons.

The pulp market in Sweden has been particularly active during August, more than 160,000 tons having been sold. Sulphite cellulose led, with orders for about 75,000 tons, principally from the United States and England. America also placed large orders for sulphate cellulose, while England was the best customer in the mechanical pulp market.

Owing to the rapid increase in the sales of Swedish pulp and paper to the United States an expert is attached to the Swedish Consulate-General in New York for the purpose of answering inquiries.

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HEAD OFFICE—TORONTO — VANCOUVER, MONTREAL, WINNIPEG

Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
Wednesday, October 29, 1924.

The closing days of October finds the chemical market in a great deal better shape than it was in at the opening of the month. Dependent as it is upon the prosperity of many diversified outside interests its improvement is largely a reflex of better business conditions in general. The month has accomplished nothing really spectacular but the progress made has been substantial and gratifying. Prices have undergone little change but the demand for the various commodities has, with hardly an exception, undergone a marked improvement. And yet there has been at no time and there is not now any real disposition to buy far into the future. The nature of the buying all through October has indicated that practically all buying was closely confined to present needs and that little of it was anticipatory. This makes clear two facts—one is that the users of chemicals have little in the way of supplies to fall back on and the other is that business in general must be moderately healthy to justify as generous buying as is being done now, particularly in view of the fact that that buying is for the immediate present. All these things taken into consideration, the chemical dealers have every reason to anticipate a brisk business in November. November is bound to be an eventful month in several ways. In the first place it will witness the end of the presidential campaign and if the doubts and uncertainties of the campaign have really had an ulterior effect on business that influence will be removed and business can burst its bonds and stretch to its full height. November will also bring the announcements of new prices on many of the commodities and that is what chemical users are waiting for and that is the reason why they are not buying on a more liberal scale today. There is a quite general feeling that the present price is too high on some of the chemical leaders and, while opinion differs as to whether chances favor a lower price or a maintenance of the present schedule, the buyers are seeing fit to wait and not buy any more than they have to. Good as business is in the chemical market at the present time there is evidence that the market is being retarded so that, with every obstacle removed, November should prove an exceptionally good month for the chemical men. Orders from the paper industry are coming in much better than they were and almost all of the trades and industries which use large quantities of chemicals are ordering in much greater volume than a month ago.

BLANC FIXE.—Demand remains about the same for blanc fixe and the past week has developed nothing new in this connection. The price remains firm at from $75 to $80 a ton for the powder and from $50 to $55 for the pulp.

BLEACHING POWDER.—Bleaching powder is constantly answering a better demand although there is not yet any buying on a contract basis. Contract buying will not develop until the new price schedule is announced and the new price is not looked for until after the election and it may be deferred until later in November. It is rather generally expected, however, that the price will be right around the present mark which is from 1.90 to 2.15 cents a pound.

CAUSTIC SODA.—Caustic soda is moving along as nicely as could be expected in view of the fact that the market is in a waiting mood and will remain so until the new price is announced. The manufacturers do not seem to be in any hurry to name the new price for next year and the market may be kept waiting a considerable time yet. The present quotation is from 3.10 to 3.15 cents a pound on a flat basis at the works.

CASEIN.—Casein is going steadily ahead but the slight cut in price a week ago has not stimulated the demand particularly. Competition is still keen. The price is from 10¼ to 10¾ cents a pound.

CHINA CLAY.—Another good week was experienced by China clay. The price stands at from $15 to $20 a ton for the imported grades and from $12 to $15 a ton for the domestic.

CHLORINE.—Chlorine stays just about so with a fair demand and the price firm. The new price schedule is looked for any time and this is holding back some buying as it is doing in the case of bleaching powder and caustic soda. It is quoted at from 4.50 to 7 cents a pound in tanks.

ROSIN.—There seems to be a very good demand for rosin just now with a promise of even better business soon. The ruling price is $6 although sales at a higher figure are by no means rare.

SALT CAKE.—Salt cake is moving just about so all the time. The producers are not producing at anywhere near capacity and the demand is taking care of the curtailed production but is not moving the surplus stock which exists. The price remains at from $17 to $20 a ton.

SODA ASH.—Soda ash is doing very well but buying is not what it would be if the buyers had their minds satisfied by an announcement of next year's price. Manufacturers do not appear over eager to make this announcement and, in view of certain conditions, the users do not seem inclined to contract for any greater quantities than they absolutely need. It is quoted at 1.38 cents a pound on a flat basis at the works.

SULPHATE OF ALUMINA.—The demand is constantly getting better for sulphate of alumina and the condition is very satisfactory. It is still quoted at from 1.30 to 1.35 cents a pound for the commercial grade at the Eastern works and from 2.10 to 2.25 cents a pound for the iron free.

SULPHUR.—There is no change in the demand or price of sulphur which is selling at from $18 to $19 a ton.

TALC.—Talc is enjoying much better demand than for a long time and the same price prevails—from $16 to $17 a ton.

Employment Managers Meet at Kalamazoo

KALAMAZOO, Mich, October 27, 1924.—"A man has got to be some financier to make ends meet and maintain a family on 40 cents an hour wages" remarked Charles D. Roberts, foreman of the Bryant Paper Company's central power plant, in a talk delivered at the Thursday noon meeting of the Harmony Club. "What is more he can never be a contented employee on that wage scale. His pay should be increased as soon as it is possible."

Mr. Roberts appeared on the program, which was devoted to a consideration of the workman's viewpoint of employment problems. T. Dale Crandall, buyer for Gilmore Brothers department store, appeared on the same card. He emphasized the necessity of the employment manager knowing his employees from the human standpoint, also declaring that it is frequently disastrous to wait too long before granting an increase in wages.

Mr. Roberts immediately picked up that point, saying that he agreed cordially with Mr. Crandall's statement, adding "The 25 cent wage increase that is given without being asked for means more than the dollar raise if the worker has to turn heaven and earth to secure it. It lets the worker feel that you know he is around, when the raise comes voluntarily."

Frank A. Lemke, secretary-treasurer of the Humphrey Company, said that in his opinion the success of the employer and employee lies in the ability of the former to light the spark of achievement in his workers, so that they do the unexpected and valuable task, thus demonstrating their real value to the concern.

The program was prepared by John Ross, time keeper at the Bryant Paper Company and chairman of the program committee.

George Pountain, superintendent of the Monarch division of the Allied Paper Mills and president of the club, announced that in the vote taken on the suggestion of changing the name of the organization that a majority of the votes cast showed a desire to drop the name "Harmony Club" and adopt "Employment Managers Club". On a motion the change was made.